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JOURNAL OF FARM ECONOMICS

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No. 1

FOOD, AGRICULTURE, AND TRADE*

THEODORE W. SCHULTZ**

The University of Chicago

THE main, early, post war developments affecting food, agriculture, and trade consist of:

(1) The transition from grants and relief by lend-lease and UNRRA to purchases paid for by trade and loans;

(2) Terms of exchange exceedingly favorable to farm products and food, but at their peak and likely to become much less favorable during the next year or two;

(3) Greatly reduced incomes and decidedly poorer diets for most of the urban-industrial population of central and western Europe and austerity in food for the people of Great Britain;

(4) Dividing the West from the East and in the process breaking up the trade between western Europe and countries to the east;

(5) Controls over economic transactions by the occupying authorities in ex-enemy countries, and by governments in Europe generally giving rise to bulk buying, long term forward contracts for farm products, and additional protection for agriculture; and,

(6) Several new international agencies to facilitate rehabilitation, exchange relationships, investments, and trade.

Food and agriculture are among the newcomers in the United Nations. They married in order to join; the ceremony was simple. They appear to be possessed with unorthodox ideas on housekeeping and have, therefore, not been well received. All this portends no few stresses and strains.

The focus on food has come mainly from nutrition, partly from

* A paper presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

** In revising this paper I have benefited from the critical remarks and suggestions of Professors Jacob Viner and D. Gale Johnson.

the acute food shortages that have occurred since the end of the war, along with the anticipated surpluses that are likely soon to put in their appearance, and partly from the strong welfare orientation and progressive leadership that characterizes FAO. The nationalistic focus on agriculture is of long standing and has now completed a full cycle since the effective use of Ricardo's classical doctrine to help repeal the corn laws, for England has returned to protection for farmers, going far beyond simple duties on imports. In the United States agriculture has emerged from the war substantially enlarged, competitively strong, but deeply enmeshed in a price policy inimical to trade, and adverse to many necessary adjustments. Meanwhile, against heavy odds, the Department of State is endeavoring to achieve conditions favorable to multilateral trade in the spirit of 19th century doctrines and practices.

Those who encourage the international focus on food want to achieve above all *better nutrition in the world*; those who support agriculture seek primarily *more price stability for farm products*; and those who favor multilateral trade want to attain *greater efficiency in the use of resources* among nations and, importantly, to keep an "open" society.

Each of these goals—better diets, stability, and efficiency—is in itself a worthy objective. It is obvious, however, that thus far in this country little has been done to integrate the three objectives into a single consistent general policy. What has happened instead is that each group with its special interest has gone its own way regardless of the consequences of its proposals to others. This driving off in different directions with regard to food, agriculture, and trade is more pronounced in the United States than in other major countries, and much harm is likely to result because the government of the United States is *peculiarly vulnerable to this kind of separatism* when it comes to high policy. The resulting inconsistencies cannot fail to have major adverse effects not only on domestic, but also on foreign affairs by adding further to the political and economic uncertainty that already so heavily burdens policy-making in that sphere.

In this paper I propose to comment briefly on certain prevailing beliefs as to the nature of the problems that confront those trying to achieve better nutrition in the world, less price instability for farm products, and multilateral trade. I shall also comment on the basic forces shaping opinion and policies that have been emerging.

I shall then turn to the task of formulating these problems in an economic context in order to facilitate analysis, and I plan to go far enough to indicate major lines of action for integrating food, agriculture, and trade policies.

The setting of this paper is of necessity primarily American, simply because I cannot do otherwise in view of my experiences, beliefs, and valuations. My terms of reference are the United States with its high and rising material wellbeing, growing expert personnel in nutrition, rapidly advancing agricultural technology, and with its greatly increased responsibility in the world economy.¹

I

Nutrition is both knowledge and a movement; as knowledge its economic effects are of two sorts: It changes the value that people as consumers place upon foods (one food relative to other foods and food as a whole relative to non-food items) and, it increases the efficiency of food, thus making it possible to achieve a given diet² with fewer resources (less land, labor and capital). Nutrition is also a social-political movement as more people come to support certain goals and measures with regard to food viewed by them as necessary in achieving the kind of diets that are essential for good health. Better diets, put forward as a social objective, makes a strong appeal to the underlying humanitarian values in our culture; moreover, nutrition has given to social welfare a specificity and an apparent objectivity³ for which many good people have long yearned. So far, however, nutrition is a Western flower. It has grown in rich soil, flourishing in countries where food is relatively abundant, where population growth has greatly diminished if not stopped altogether, where the gloom of Malthus no longer holds sway and where Ricardo's presupposition regarding the niggardliness of Nature^{3a} has been invalidated, not by words but by agricultural sur-

¹ Professor Jacob Viner stresses this development in his paper *The Place of the United States in the World Economy* (mimeo.) given before Conference IV, the Princeton University Bicentennial, October 8, 1946.

² By a "given diet" I mean here a diet specified in terms of (a) its nutritional value, and (b) its capacity to satisfy people's taste. The discovery that carrots grown in certain areas are much more nutritious than those grown in other sections with no other discernible differences, including no difference in cost, makes it possible to achieve a given diet with fewer resources.

³ The Recommended Dietary Allowances of the Food and Nutrition Board of the National Research Council are a striking example. See Table I, p. 114, *Food for the World*, edited by Theodore W. Schultz, University of Chicago Press, 1945.

^{3a} I have in mind here, more specifically, Ricardo's basic assumption that the production function of land is uniquely fixed.

pluses. With so much food at hand, and farmers (in Western countries) ever ready to produce more, a fact which has been amply demonstrated during the war, why should the mass of people in the world continue to suffer from inadequate diets? Many nutritionists view the failure to use our food-producing resources satisfactorily as merely a special case of poverty amidst plenty; nor is it difficult to understand why it should appear to them that the economic mechanism is to blame for this paradox. They ask: Do not most economists after all go back to a backward agriculture and to a time when little was known about nutrition for their doctrines and inspirations, back to Malthus on population, to Ricardo on food supply and to Say on the nature of the market?

Those interested in food and nutrition have recently put their case as follows:⁴ "The world needs more food both to feed more people and to feed people better." To achieve their 1960 target, "original calories would have to be increased by 90 percent in comparison with prewar value. Fifty-five percent of this increase is accounted for by improvement in the diet and 35 percent by population growth . . . in the less developed countries (this) will require a great expansion in agricultural resources, and indeed in all other resources as well. Large increases in imports may be needed also. That would call for expanded production in exporting countries as well as production of commodities in the importing countries to trade for food. Nothing less is involved than a transformation of life in all its aspects which challenges the best efforts of science and industry, government and peoples." They contend that the needed additional food "will not come automatically." Positive international action will be necessary. "Without adequate international action, not only will the world's requirements for food not be met; there is danger of a regression to the trends of the 1930's, when the most technically advanced agriculture in the world had to repudiate its own progress and restrict production to avoid economic disaster." To avoid a return to restrictionism in agriculture and to achieve the desired nutrition goals "*A New Kind of Planning (is) Needed.*"

Turning now to agriculture we find much that is old: Tariffs have not lost their glamour and every farm product that can conceivably be imported is a candidate for protection. The lowering of tariffs

⁴ Food and Agriculture Organization of the United Nations, *World Food Survey*, Washington, D. C., 5 July 1946. Pp. 19, 20, 25, 26, and 29.

comes hard and slow regardless of party vows and the good intentions of officials. On the export side the fine art of dumping has been made to serve many farm products. But to protect and dump is all very old. To these, however, have been added proposals for collective action on behalf of agriculture in the international sphere, notably commodity agreements and a world food board.

In most Western countries, certainly in the United States, farm people have become aware of their capacity readily to produce more food, more feed, and more fibers, and they also realize that it is very difficult to achieve a contraction in production, one of the lessons that the AAA has unwittingly taught them. Expansion in output comes easily in the more developed countries with improvements in skills and the availability of better techniques and more capital. Those who speak for agriculture see the production of farm products caught in this forward surge, and they are prone to ascribe the emerging surpluses not so much to maladjustments in production as to shortcomings of the market.

Leaving aside for the moment the specific vested interest in protection and in dumping, the primary correctives for the shortcomings of the market for farm products as viewed by those who seek to advance the interest of agriculture are two-fold: (1) The size of the market should be increased⁵—people should have more and better food, and (2) farm prices should be made more dependable—heretofore they have been altogether too unstable. Obviously, in the first of these issues there has occurred a natural joining of hands of agriculture and those interested in better nutrition, and in the latter, of agriculture and those concerned about the cyclical instability of employment, production, and income of the economy as a whole.

It hardly seems necessary to outline the developments that have put this country in the forefront promoting freer trade arrangements: There is the reaction to the Smoot-Hawley episode, a tariff hike identified with the Great Depression, the achievements of a Secretary of State determined to free the channels of trade, and more recently the growing realization that the long run interest of the United States with its advanced technology and ability to provide capital lies in the policies of Cobden and Bright as Great

⁵ The strength of this belief is manifest in the underlying assumption of the Hope-Flannagan Bill, Public Law No. 733, 79th Congress, authorizing much larger appropriations for the support of agricultural research with special emphasis upon studies to improve the market.

Britain relinquishes her leadership in industrialization and as a source of capital. The basic ideas supporting the doctrine of free trade are, however, not new. They are classical. They represent the fruit of economic analysis applied to the problem of achieving world wide efficiency in the use of resources and in practice have proven especially advantageous to countries in the vanguard in finance, industrial techniques and skills.

Three distinct goals emerge, one each for food, agriculture, and trade, which we have seen fit to call *better diets*, *more stable farm prices*, and *greater efficiency in the use of resources*. These goals, however, represent a mixture when it comes to ways and means, and in this, as has already been indicated, they are not at all points consistent one with another. Non-economic considerations are also involved but these we shall leave aside. Our next task, therefore, is to try to isolate and identify the more important characteristics of each goal as a policy objective in terms of the conditions and institutions required to achieve the goal in the context of the problem at hand.

Let us take first the objective of better diets. With the state of knowledge about nutrition and taste given,⁶ better diets go with the better incomes; as incomes rise, diets improve; the income elasticity for food of people in the higher income brackets, even of all people taken together in a rich country like the United States, is relatively low, while in the lower income brackets and in the poor, less developed countries it is relatively high. Again, with knowledge and taste given, the relation between diets and income indicates that the heart of the matter is to be found in the level and distribution of incomes.⁷ Raising the level of incomes by increasing production is, of course, straightforward in its economic implications, although the task of attaining more real production per head is far from easy. Major unsettled issues, however, arise when the personal distribution of income is considered, issues both in analysis and in practice.

⁶ I do not want to leave the impression here that our knowledge about nutrition is perfect. Obviously, more expert knowledge is needed requiring experimentation, analysis, study, combined with much trial and error. Even more patent is the fact that the people acting as consumers or as agents to feed others do not possess for the most part even the most elementary knowledge about what is now known by the experts in nutrition. The task of advancing knowledge in this context, however, presents no new economic issues: It requires plans, organization and funds for education in order to disseminate, diffuse, and demonstrate through public and private channels what is known and funds for research to add to our expert knowledge.

⁷ This assumes, for the moment, that the cost of food relative to other products and services is not altered.

In this, the primary unsolved problem that confronts those who seek to advance the objective of better diets in the world is the prevailing inequality in incomes, both within and between countries. The adverse effects of this inequality upon food consumption are, however, much less acute within the more highly developed countries, because with a high level of income diets are generally among the best and because the state has employed the progressive income tax and other measures to lessen somewhat the adverse effects of the unequal distribution of incomes among persons; but when we turn to the international sphere this problem and the way it impinges upon food is especially acute. Moreover, as yet *no rules, principles, and institutions have been developed*, first to check and then to lessen the very wide gap as between different nations in income per head, that is, between the backward, least developed, and the more highly developed industrial countries.⁸

At this point this problem can best be put as follows: Is it feasible and desirable to develop social and political institutions to check, and also eventually lessen, the income inequality among people located in different parts of the world, between those in the less and the more highly developed countries? Institutions of this type

⁸ In *The Conditions of Economic Progress* (Macmillan, 1940) Colin Clark includes a table (facing page 148) giving the national income produced per head of working population, including individuals working and unemployed on a basis of a 48-hour week. In the figures that follow income is expressed in terms of Mr. Clark's International Unit.

	United States	India	Difference between U. S. & India
1870	730	112	618
1880	813	140	673
1921	1160	198	962
	Sweden	Japan	Difference between Sweden & Japan
1877-85	209	(1887) 72	137
1914	499	132	367
1922	572	183	389
1930	704	295	409
1936	804	337	467
	Australia	Italy	Difference between Australia & Italy
1901	645	210	435
1914-15	742	(1913) 323	414
1925	1051	350	701
1934	1094	399	695

would of necessity have to be international in their design. The question, however, arises—have people, particularly in Western countries, who enjoy positions of advantage, reached the stage where their humanitarian values and their ideas with regard to welfare, encompass and include other nationals?⁹ The focus on food that has come with the advances in nutrition does indicate just this. The first impulse seems to be to proceed on a kind of *ad hoc* basis—in time of war to be generous with lend lease, in the event of emergencies provide food for relief, and now when surpluses accumulate it is proposed to make them available to the poor of other countries. But in all this no guiding principle or over-all institutions have emerged. The whole thing is very much on a hit-and-miss basis. Moreover, many real difficulties will arise when an effort is made to proceed more systematically. We need to examine whether it is possible to do so (a) without perverting international agencies whose functions it is to operate countercyclically, (b) without raising new barriers and reducing the incentives for international trade and investment, and (c) whether other grants and aids, other than food, may not be better in achieving the expectations that go along with the goal of greater equality.

Much of what has been proposed with regard to food in the international sphere does not fit into the cost-utility calculus of economics, of relative prices to guide production and consumption, to achieve economy. In fact, a good deal of what has been said has not only been naïve but has been patently misunderstood by those who are concerned about economy, simply because some of the proposals for better diets have been rationalized in a cost-utility frame of reference whereas a very basic element of the problem is not amenable to this formulation. Much confusion and misunderstanding has arisen from the failure to identify and isolate the effects of the inequality of income on food consumption, inequality that is not lessened by trade or by countercyclical measures.¹⁰

Next let us consider farm product prices from the point of view

⁹ An interest in this problem also arises for other reasons: The growing awareness of people generally in the world of their lot compared to others more favorably situated gives rise among people in backward areas to restlessness and to political tensions and pressures. To counteract these, partly for reasons of security, people enjoying the highest real incomes may wish to take cognizance of the problem of income inequality.

¹⁰ I do not want to leave the impression here that trade, foreign investments and full employment are not the primary means for bringing the real incomes of people up in the less developed areas of the world. I shall take up this point in Section III of this paper.

of instability. There are many different facets—seasonal, cyclical, and secular characteristics are discernible. Price instability in each of these temporal situations may originate either on the supply or the demand side. All too little has been done to identify with care the particular types of price instability affecting farm products that can be dealt with on the international level. FAO in its proposal for a World Food Board boldly but indiscreetly embraced altogether too much when it indicated that the first function of this board would be “To stabilize prices of agricultural commodities on the world markets . . . ”¹¹ Little can be gained from this formulation for it actually gives no clue whatever for identifying the particular type of price instability that may be amenable to international action.

It is quite apparent that the war and its early aftermath put farm prices in a most favorable position. In the United States farm prices soared to a legal parity of 132 in October 1946. Surely, it should not be the objective in achieving greater stability for farm product prices to maintain these very favorable terms of exchange for agriculture. A major price transition is necessary and with it will come considerable instability in farm product prices. To delay, however, this transition when peacetime supply and demand conditions warrant lower relative prices for primary products would indeed do much harm. I am sure it was not the intention of those who proposed the World Food Board to resist or impede this transition in prices even though it causes considerable instability.

Acute food shortages, reaching the famine stage, in many parts of the world recently, once again, have focused attention upon crop failures as a cause of sudden scarcities and of price instability, as did the unprecedented droughts of 1934 and 1936 when we took steps to establish the ever-normal granary. Are year to year variations in food production a primary cause of instability requiring remedial action by an international agency? The FAO report tells us that the second function of the proposed World Food Board would be, “To establish a world food reserve adequate for any emergency that might arise through failure of crops in any part of the world.”¹² Yet, despite this belief that positive action is needed, the experience of prewar years does not seem to indicate that a

¹¹ Food and Agriculture Organization of the United Nations. *Proposals for a World Food Board*, Washington, D. C., 5 July 1946. P. 11.

¹² FAO, *Proposals for a World Food Board*. P. 11.

world food reserve is required, in addition to stocks and other supplies held on private and public account prior to the war, to avoid food shortages when crops are poor or fail in some parts of the world.¹³ When war has torn asunder the fabric of trade and finance and many nations are dependent upon relief and allocations for food, control by some kind of international agency is virtually indispensable regardless of the causes that happen to give rise to the particular food scarcities. In this context the International Emergency Food Council has served and continues currently to serve an important and necessary function. But here again, as war-torn conditions recede and stocks accumulate, even though they do not reach prewar levels, it may well be that the aggregate year to year variations in food production can be cushioned adequately by such stocks. In fact, the stocks of many storable basic foods were, if anything, excessive prior to the war when looked upon as offsets to shortages caused by adverse weather and low yields.

There are, of course, other causes for instability of farm product prices. The strictly seasonal increases and decreases in outputs illustrated by eggs represent an important type. The swings in production commonly ascribed to the hog and the beef cattle cycles constitute another. In these cases we need to ask, however, are the resulting fluctuations in farm product prices appropriate grist for an international agency authorized to stabilize farm product prices? The answer, at least for the present, appears to lie in the negative. I can hardly visualize how an international agency could come to grips with this type of price instability even if it had a mind to do so.^{13a}

These negative observations should suffice to make plain the

¹³ If we take prewar production and carryovers as a benchmark it appears that countries that depend mainly on cereals for food and, therefore, have little or no opportunity of using feed grain as food, can in the event of a short crop buy extra food grain abroad. The limiting factor in peacetime has been primarily financial. People in these countries simply have not had the resources to buy imported food grains even though supplies were readily available. In the case of feed supplies, there is much merit in establishing a large reserve in the United States. The gigantic livestock economy (cattle, hogs, sheep, chickens and dairy) of this country is geared to a feed supply that varies greatly from year to year, and private carryovers have been altogether too small to compensate for even minor dips in feed output. Nor are there feed supplies in other countries, on which the United States can draw, sufficient to give any appreciable relief in holding livestock production steady.

^{13a} These product cycles are confined mainly to animal products, and storage or buffer stock operations are, for the most part, not applicable because of the perishability of the products. The rate of output of these products is a function of feed supplies and feed supplies cannot be kept even by countercyclical operations.

need for identifying the instability in farm product prices for which international action is deemed necessary. I am prone at this stage to narrow and even limit the field to that instability associated with the periodic fluctuations in aggregate demand caused by the unstable character of the economy of Western industrial countries. This, of course, is the problem of the business cycle. It strikes two ways when depression conditions prevail: In secondary and somewhat less in tertiary industries, it gives rise to mass unemployment; and, in primary industries, to ruinously low product prices.¹⁴ In the case of agriculture, in general, producers apply about the same production efforts regardless of short run changes in economic conditions and the aggregate output of food, therefore, fortunately, does not follow the vicious rhythm of booms and busts. But the prices that producers receive are exceedingly sensitive to these short run changes in economic expectations and accordingly with output stable their income is notoriously unstable. A large number of important primary products enter world trade in substantial volume, sufficiently so to be affected by the prices of other countries, other than the countries in which the products are produced. The principal question here can be put as follows: Is it feasible and desirable to counteract this type of price instability by some international agency? Clearly, no such agency now exists. The International Bank for Reconstruction and Development is not authorized to undertake this task, nor is any other existing international organization.

To analyze the economic issues that this problem presents it is necessary, first, to identify the instability in farm product prices focusing at this stage strictly on the instability caused by the cyclical rise and fall in aggregate demand; second, to ascertain to what extent it is possible to counteract this type of price instability by national policies and programs without jeopardizing the objective of multilateral trade; and third, if national measures are not appropriate, to examine whether or not other more indirect means are better suited to this task when it is undertaken by an international agency. We shall return to these issues in the last section of this paper.

The third goal which we listed at the beginning of this section, that associated with multilateral trade, the goal of efficiency in the

¹⁴ There are some primary industries that suffer from unemployment also.

use of resources in an interdependent world economy, has back of it the full weight of classical economics demonstrating the advantage of unfettered trade in bringing about in the long run the most efficient use of world resources. There is, therefore, no point in laboring the characteristics of this goal in its economic setting. We pass, therefore, to some reflections on policy pertaining to the three spheres—food, agriculture and trade; better diets for more people in the world, less instability in farm product prices caused by the short run fluctuations in aggregate demand, and more efficient use of resources as among nations.

III

In opening this section on policy it may not be amiss to remark that the economic foundations for both low or no trade barriers and for multilateral trade, for whatever trade did occur, are well established, an acceptable policy doctrine exists and the necessary institutions have been tried and tested.¹⁵ Here then, we are on firm ground except in dealing with state trading and the socialization now growing apace in many countries on the one hand, and the concentration of economic power in fewer private trading firms on the other. Even so there is a positive policy design, singularly suitable and highly advantageous to the United States at this juncture of her economic development. Policy to counteract instability, however, does not have nearly so solid a base. Although this issue has been decidedly in the forefront in recent decades, especially since World War I, the problem of instability has not been resolved sufficiently to indicate what are the basic causes of the recurring short run fluctuations in aggregate demand. Among the schools and doctrines, none has had the strength to win the field. Countercyclical policy, accordingly, is in a much more unsettled state than is trade and investment policy when these abstract from or disregard instability. Despite the present state of enlightenment some steps will be taken to try to avoid at least the more extreme phases of the business cycle. The dangers of another major depression hang like a Damoclean sword over international economic affairs; the fear of mass unemployment and ruinously low primary product prices haunts both small and big nations dependent upon capitalistic in-

¹⁵ There has been one historic dissent from this doctrine, namely, that a nation in the early stages of industrialization is at a considerable disadvantage in competing with the products of a country where industry is a going concern and well established.

stitutions. To make any substantial progress in international economic relations, therefore, it will be necessary to allay this deep-seated fear.

The problem of welfare economics—viewed internationally taking cognizance of the growing inequality in income between the less and the more highly developed countries, including its implications for nutrition—does not as yet have an economic rationale on which to build. Welfare economics where it deals with inequality is still strictly a national seedling, frail and not of healthy growth. Superficially, this problem does not seem as pressing as does the cycle; and if this is not an illusion, there should be time to think through and establish an acceptable foundation for welfare economics applicable to world conditions.¹⁶

Let us now turn to the major proposals in each of these three spheres and reflect briefly in closing on their respective limitations, especially as they relate one to another. Take first the proposals for achieving conditions more favorable for multilateral trade. Given the long view there can be little doubt that these proposals would induce a better use of the productive resources of the world than would otherwise occur. The implications of this achievement to agriculture and food is all too often overlooked by those concerned mainly with the short run maladjustments adversely affecting farmers and consumers. Much of the problem of chronic surplus of farm products is basically caused by too many resources devoted to farming, primarily an excess supply of labor engaged in agriculture. If costs of production are to approach that minimum and rewards to factors that maximum consistent with an optimum utilization of resources, it is necessary to continue to transfer much labor out and capital into agriculture.^{16a} A general lowering of tariffs and the removing of restrictions on foreign investments would give extra impetus to the expansion of production in secondary and tertiary relative to the primary fields, not only within the less but also and especially and more directly in the more highly developed countries. Nutritionists generally, and many professional workers in agriculture apparently do not realize the extent to which Western countries have made some sectors of agriculture a refuge for labor

¹⁶ Economic welfare in this context focuses upon the effects of changes in the distribution of the "international" dividend; it is in keeping with Pigou's analysis in Part IV of *The Economics of Welfare*.

^{16a} See chapters III and IX of my book *Agriculture In An Unstable Economy*, McGraw-Hill, 1945.

resources engaged in inefficient lines of production, inefficient in terms of alternative employment if the channels for trade and investment were cleared. Nor should it be assumed here that it is only the major food deficit countries that err in this connection; upwards of half of the farms in the United States are unbelievably inefficient in this context; these farms have a labor productivity far below that of most farmers in Western Europe, whereas when we consider the general level of output per head in the United States they should be much higher.

The Monetary Fund and the International Bank are important stepping stones on the road toward lower trade barriers; one much needed stone, however, is missing. Instead of finding it and putting it into place, ill-conceived detours have been undertaken which may seriously endanger the whole procession. No satisfactory international arrangements have been made to deal with the unstable character of the Western economy. Professor Jacob Viner has observed, "... a major point, on which . . . planning in the international financial field, so far as that planning has been made public, is seriously lacking in its scope . . . is the problem of international co-operation to avoid mass-unemployment."¹⁷ It seems to me that those responsible for the American proposals¹⁸ have been making the mistake, first of believing that lower trade barriers and multilateral trade will adequately enhance economic stability, second, of not giving the problem of instability the weight it deserves, and third, of letting anti-cyclical measures enter through the back door, measures of a type that are likely to compromise seriously the long run objective of multilateral trade.

Not enough stress has been put on the point that multilateral trade even under favorable circumstances is not likely to suffice to assure avoiding mass-unemployment and ruinously low primary product prices. Lower trade barriers tend to raise the quality and not the quantity of employment. They do not necessarily stabilize product prices cyclewise. Professor Viner also rejects the argument that routine, unplanned export of capital promotes either a greater volume of employment or more stability of employment.¹⁹ Nor do

¹⁷ "International Finance in the Post-War World," *Lloyds Bank Review*, October, 1946, p. 12.

¹⁸ I refer here to the *Proposals for Expansion of World Trade and Employment*, November, 1945; and the *Suggested Charter for an International Trade Organization of the United Nations*, September, 1946, both by the Department of State.

¹⁹ Viner, already cited. P. 14.

unplanned capital exports neutralize the adverse effects of business depressions upon farm product prices.

The main proposals for achieving greater stability in employment and in primary product prices are as follows: Viner believes that "an International Employment Stabilization Fund" is required "endowed with very great financial resources" much like the International Bank, "but on a scale perhaps three to four times as great."²⁰ In this approach the primary reliance is put upon anti-cyclical investment operations; purchase and sale of commodities are, however, not excluded in Viner's plans for he indicates that a program "of accumulation of stocks of basic commodities for commodity stabilization and for the maintenance of 'ever-normal granaries' could readily be fitted into the operations of this agency."²¹ Riefler has taken the recommendation advanced by The League of Nations Delegation on Economic Depressions²² for an International Buffer Stock Agency and has outlined the form of organization, the nature of the capital funds and borrowing power required and the procedural safeguards for such an agency.²³ The Twentieth Century Fund report on Foreign Economic Relations chaired by Riefler does not exclude investment operations, for it urges that the instructions of the International Bank be amended so that the Bank will act as a "contracyclical instrument to stabilize the flow of foreign investment."²⁴ The report, however, takes a more positive position favorable to buffer stocks in asserting that, "A balanced foreign economic program adequate to deal with international aspects of the problem of depression also requires a 'buffer stock' policy."²⁵ In the case of the World Food Board suggested by FAO it would operate through commodity committees to stabilize prices but it would not be restricted to countercyclical operations. Nor is there any provision for investment activities, other than that involved in buying commodities, to keep primary product prices from becoming depressed or for that matter to keep mass-unemployment from occurring. The proposed World Food Board, however, would have a

²⁰ Viner, already cited. P. 16.

²¹ Viner, already cited. Pp. 16-17.

²² League of Nations. *Economic Stability in the Post-War World*, Part II, Chap. XIX and part of Chap. XXI, 1945. Riefler was chairman of the Delegation that prepared this report.

²³ Winfield W. Riefler. "A Proposal for an International Buffer-Stock Agency," *Journal of Political Economy*, Vol. LIV, No. 6, Dec. 1946.

²⁴ The Twentieth Century Fund. *Report of the Committee on Foreign Economic Relations*, 1946. P. 17.

²⁵ The Twentieth Century Fund, already cited, p. 20.

number of additional functions which we do not need to consider here. Next, let us take the suggested charter for an International Trade Organization put forward by the Department of State.²⁶ Here the task of achieving full employment is not viewed as an international undertaking but to be left to each country since, "Each member shall take action designed to achieve and maintain full employment within its own jurisdiction through measures appropriate to its political and economic institutions."²⁷ Not even internationally negotiated and planned synchronization of national fiscal policies, weak as that would be, has been proposed. To deal with primary products the suggested charter for ITO endorses intergovernmental commodity agreements to regulate production, trade and prices when "the root causes of the problem" are either a "burdensome surplus of the product" or unemployment in the particular industry producing the commodity not related to general business conditions.²⁸ The governing principles seem to be designed to deal with long run maladjustments in production, with the problem of excess supply of resources in sectors of agriculture for example, and not with short run fluctuations in aggregate demand.^{28a}

From one point of view it might be argued that these proposals

²⁶ Department of State, *Suggested Charter for an International Trade Organization of the United Nations*. September, 1946.

²⁷ Department of State, already cited, Chap. III, Article 4, p. 2.

²⁸ Department of State, already cited. From article 45, p. 31, I quote, "Members agree not to enter into intergovernmental commodity agreements involving the regulation of production, trade or prices, except after

a. investigation by the Study Group of the root causes of the problem which gave rise to the proposal;

b. determination, under procedures established by the Organization in accordance with paragraph 6 of Article 55, either

1) that a burdensome surplus of the product concerned has developed or is developing in international trade and such burdensome surplus would, in the absence of specific governmental action to prevent it, be accompanied by widespread distress to small producers accounting for a substantial portion of the total output and that these conditions cannot be corrected by the normal play of competitive forces because, in the case of the product concerned, a substantial reduction of price leads neither to a significant increase in consumption nor to a significant decrease in production; or

2) that widespread unemployment, unrelated to general business conditions, has developed or is developing in respect to the industry concerned and that such unemployment cannot be corrected by the normal play of competitive forces rapidly enough to prevent widespread and undue hardship to workers because, in the case of the industry concerned, (i) a substantial reduction of price does not lead to a significant increase in consumption but leads, instead, to the reduction of employment, and (ii) the resulting unemployment cannot be remedied by normal reemployment processes.

^{28a} The San Francisco charter and agreements appear to call for more international action to avoid widespread unemployment than the suggested charter prepared by Department of State provides for.

are not alternatives because each deals with a somewhat different problem and accordingly what matters is whether they complement each other and whether each is necessary. The State Department would use commodity agreements to remedy chronic maladjustments in supply caused by excess supply factors in a given primary production field. Riefler's plan is for a separate international agency to stabilize the prices of primary commodities cyclewise. Viner puts commodity stabilization operation into a secondary place making it a part of an international agency that engages chiefly in investment operations to avoid mass-unemployment and, presumably in doing this, also lessen substantially the short run fluctuations in primary product prices.

* * * *

Put as alternatives, I believe that if we were successful in keeping employment at a high and even keel most of the need for countercyclical operations in the commodity field would disappear. If Viner's proposal for an International Employment Stabilization Fund were adopted and if thereby unemployment were kept from falling below, let us say, 5 percent of the labor force, when the aggregate demand started to decline cyclewise, commodity prices would no longer be burdened with that excessive instability characteristic of them since World War I. Failing, however, to achieve this goal,²⁹ an International Commodity Organization would be preferable to specific commodity agreements for the purpose of counteracting the short run fluctuations in demand caused by the cycle. Commodity agreements as conceived by the State Department are not suited for buffer stock operations strictly countercyclical in nature.³⁰ A commodity agreement deals with a single

²⁹ Even if an international agency were established with ample resources and instructions to avoid mass-unemployment, it would probably take considerable time to develop appropriate investment operations and a procedure that would command sufficient confidence to make it possible to keep unemployment from rising to substantial levels when aggregate demand fell cyclewise. It might take years for business expectations to come to reflect confidence in these countercyclical operations. Until this occurs, purely as a safety measure, (a) the scale of operations of the anticyclical agency would need to be greater, and (b) there would be a greater call for buffer stock operations.

³⁰ It is my impression that those in the United States Department of Agriculture favoring commodity agreements take a much more "nationalistic" point of view than that expressed in the State Department proposals. Leading spokesmen for the U.S.D.A. seem to view commodity agreements as an "orderly" means for bailing out domestic agriculture caught as it is in a snarl of price supports, export subsidies and production controls. This view also fits in readily with the strong protectionistic position of important commodity pressure groups in agriculture.

commodity and it therefore becomes oriented toward the particular production, trade or price problem of that commodity.

National programs for agriculture may be looked upon as still another way of counteracting short run fluctuations in aggregate demand. Programs to support farm product prices are in this category; another consists of income payments countercyclical in design. Compensatory income payments to farmers during a depression have the merit of keeping the channels of trade open and also of avoiding production controls. The cost of this approach is sufficiently great to keep most countries with primary producers who are most vulnerable from providing this kind of income protection. In general, the wealthier the country and the smaller the proportion of its output in primary products the better it is situated to undertake income payments to farmers to offset the adverse effects of business fluctuations. In any case, income payments of this type are not intended to stabilize farm product prices; these would continue to fluctuate as before except as the income payments themselves might cushion slightly the fall in aggregate demand.

Price support programs on a national basis for products that can be stored are in substance miniature buffer stock operations. In principle, in the case of products entering world trade, the country operating a price support program does cushion the downward movement of world prices by its buying and storage operations, unless it resorts to export dumping. National programs of this type are also too costly for all except the wealthier countries; they have, in addition, some major disadvantages compared to income payments in that they tend either to clog the channels of trade or to bring about export dumping.

Lastly, then, we come to the proposal of FAO for achieving better diets where income is inadequate. We leave aside here the benefits that can be realized from the extension of knowledge with regard to nutrition, from industrialization, from the export of capital, technology and skills and from trade. At this point we are not appraising measures to increase the productivity of people and thereby increase their real income and their ability to acquire more and better food. With incomes as they are what can be done? The FAO suggests this: "Provide funds for financing the disposal of surplus agricultural products on special terms to countries where the need for them is most urgent."³¹

³¹ Food and Agriculture Organization of the United Nations, *Proposals for a World Food Board*, Washington, 5 July 1946. P. 17.

Within the more advanced countries a few programs have been developed to supplement the diets of people with inadequate incomes without obstructing trade and investments, that is, without reducing the efficiency of the economy in terms of resource allocation. In fact some additional efficiency may have been achieved, especially if we take the long view. These devices, however, do not appear to be applicable to India, China, and other countries in the early stages of industrialization. Three major considerations arise: (1) Can "surplus" food be allocated to the less developed countries and distributed and not affect adversely trade and investment and, importantly, the necessary transfer of resources out of some major sector of agriculture? Tentatively, the situation points to a negative answer. (2) When steps are taken to help people whose food needs are the most urgent, can the food be distributed in ways that will not induce further population growth? My guess is that we do not know. (3) Lastly, why focus on "food" rather than on the general standard of living? Are we not in danger of over-emphasizing food relative to clothing, shelter, fuel and medical care by this procedure? What we want to see achieved are higher real incomes per person. To do this the main goal must be higher productive capacity.

REVIEW OF PROFESSOR SCHULTZ'S PAPER*

JOHN D. BLACK
Harvard University

PROFESSOR SCHULTZ'S paper is an excellent and well-reasoned analysis of a highly involved and difficult subject. For me to enumerate all the points on which he and I are in full accord would call for almost a restatement of his whole analysis. Attention must therefore be confined here to points of difference even though they bulk small as a percentage of the total. It is particularly necessary to include this prefatory statement in this case because my past attempts at review of Professor Schultz's papers have been taken by some to indicate diametrically opposed positions upon important points. Actually, his position and social philosophy and mine run closely parallel. If there is any doubt on this point in any of your minds, be sure to read the review of Professor Schultz's *Agriculture in an Unstable Economy* by Dr. Joseph S. Davis in the next May issue of the *Review of Economic Statistics*, and set it in contrast with my review of it in the August (1946) JOURNAL OF FARM ECONOMICS.

First to be noted in this present paper is Professor Schultz's attempt to deal with three objectives of agricultural policy—"better diets, more stable prices, and greater efficiency in the use of resources"—in one stride, not taking them two at a time as in his last book; and more important, to set about to find some common meeting ground for these objectives rather than to emphasize their incompatible elements. He should be applauded vigorously for this change in strategy. It will make his contribution to agricultural policy making in this country even more potent than it has been.

Still it must be observed that what he comes forth with after an effort along these lines is definitely negative in tone. Dr. Davis, I am inclined to believe, will therefore find more to approve in this paper and less to disapprove than in *Agriculture in an Unstable Economy*. The older among us will remember Dr. Davis was not always as negative as in his forthcoming review of *Agriculture in an Unstable Economy*. Once in his younger days he did approve the setting up of a federal farm board, and became the first economic advisor for the one that was set up by President Hoover in 1929.

* A review presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

But this Board at once proceeded to operate on lines contrary to those which Dr. Davis had in mind, with the disastrous results with which we are all familiar,—results in large part due, however, to the period in which the Board began operating. Professor Schultz and I have both had experiences that might well have made us equally disposed to condemn most departures from the true and tried. Professor Schultz, for example, has seen the “ever-normal granary” which he espoused diverted into a device for putting bottoms under prices at 90 and 92½ percent of parity. I, for example, have had the sad experience of seeing a production adjustment program which I espoused, a program designed to secure more orderly production, diverted in considerable part into a device for tying production to historical bases and distributing parity payments among the cotton, tobacco, and corn producers mainly. That Professor Schultz is still willing to venture is clear to anyone who reads his *Agriculture in an Unstable Economy*.

Nevertheless, in the present article, in which he carries his thinking into the international field, his positive proposals seem to be outweighed by his negatives.

A careful inventory of his paper from this point of view reveals the following positive valuations. First of all, he finds in the State Department's policy of lowering trade barriers and removal of restrictions on foreign investments a definite contribution both to more effective use of resources and to better nutrition of the people in the congested agricultural areas of the world. Expansion of trade and more rapid development of backward areas will tend to transfer labor more rapidly out of these congested areas. It will be hard to find anyone who will not agree with Professor Schultz on this point.

Second, he seems to be in full accord with Professor Viner's proposal for an “International Employment Stabilization Fund,” with resources three or four times those of the International Bank, as a means of preventing worldwide cyclical mass unemployment. He appears to think that such an agency, if properly managed, would contribute to all three of the objectives.

As to the third positive element on his program, namely, the buffer stock proposal of the British group, and of Riefler in his Twentieth Century Fund Report on Foreign Economic Relations, Professor Schultz qualifies his approval somewhat. He looks upon international buffer stocks as something to be used in the event that the Viner proposal is not adopted, or particularly during the

"years" that it might take for business men to come to believe that the International Employment Fund would really prevent cyclical unemployment. The inference is that the Riefler program would not be needed if the Viner program were adopted and made to work.

As for the device of counter-cyclical compensatory or income-deficiency payments, which in many ways is the essential feature in his proposal for the domestic economy of the United States, he observes pertinently that it can be used only within individual nations and only within the wealthier ones at that.

Now let us turn to the negative aspects of his paper. He virtually condemns the United States proposal for commodity agreements because they promise to contribute nothing counter cyclically, and the World Food Board proposal on much the same grounds. He properly ascribes to the commodity agreement proposal the objective of dealing with what we in this country have been prone to call "chronic surpluses"—referred to by him as "long-run maladjustments in production." But he does not appear to consider this objective as worth analyzing even for a single paragraph.

The most negative part of Professor Schultz's paper, however, is that which deals with the objective of better diets. After devoting six pages in Parts I and II of his paper to a description of better nutrition as "knowledge" and as a "movement," he winds up by questioning seriously whether any systematic international effort along these lines is possible without defeating the other two objectives; with a paragraph in Part III in which he puts nutrition in the general category of "welfare economics" and sets all such matters aside to be taken up after more pressing matters, specifically, the business cycle, have been dealt with; and with a remark in the last paragraph of his paper, that we do not know enough about supplementary food distribution measures to say whether or not they will interfere with trade and investment programs, or induce further population growth. Surely, this is about as negative a conclusion on this part of the international program as could be reached at this stage.

The difference which this reviewer has with Professor Schultz on the problem in hand can be summarized by saying that the reviewer is more negative with respect to the Viner and Riefler proposals, and more positive with respect to dietary proposals. His negativity toward the first two, however, does not arise from any objec-

tions to them in principle, but rather to basing either national or international policy on any hope that they will be adopted and successfully implemented in the near future. He expects to see, in the next ten years, several individual countries making significant progress toward preventing mass cyclical unemployment within their borders. He hopes that this progress will be enough so that sometime toward the end of the decade following—that is, 15 to 20 years hence—the Economic and Social Council of the United Nations will see a way to getting an international employment stabilization agency into action. It will still be another decade or two before the agency will gain sufficient confidence to be generally effective. In the meantime, most progress internationally in this direction can be achieved by expanding the role of the International Bank to include “planning” foreign capital investments counter cyclically. The Bank needs to liberalize its ideas on this subject.

Buffer stocks will develop almost equally slowly. First, we shall have further experimenting with formal full-fledged international commodity agreements. Several of them may be operating after a fashion ten years from now. In another decade, a couple of them may develop to the buffer-stock stage. Both of these will persist, contrary to Professor Schultz's interpretation, even if the Unemployment Stabilization Fund gets going. Professor Schultz, in my judgement, much underrates the problem of “chronic surpluses” in agriculture. He is too largely concerned with business-cycle surpluses.

It turns out, therefore, that Professor Schultz's program in the international field consists, practically speaking, of relying upon such transfers of surplus population from congested rural areas as may be induced by freer exchange of farm products and freer investment of capital in foreign industrial ventures, and upon the slow evolution of international institutions for stabilizing employment, with intervening use of such buffer arrangements as may slowly evolve. Other measures are to be set aside to give these three a chance to evolve. The FAO program, insofar as not included in the three types of measures favored, becomes a program merely of “the extension of knowledge of nutrition,” and “the export of technology and skills.”

This reviewer is unable to look upon such a diagnosis of the situation as other than preponderantly negative. Long before freer trade and foreign investment, plus the two new types of agencies pro-

posed, are important in the world, the nations will be under such pressure from the producer groups plagued by surpluses,¹ and from the unrest of their sick and hungry millions, that they will be forced to adopt more immediate and specific measures. (Have any of you perchance failed to read the six resolutions regarding international measures drawn up at the San Francisco Farm Bureau meeting?) If economic intelligence is to be utilized in the next decade or two, it will therefore need to apply itself more largely to these more immediate measures than Professor Schultz indicates. If it is not, we shall indeed have a set of measures imposed upon us which will interfere with fundamental long-run economic objectives.

Perhaps school feeding can be taken to illustrate the possibilities of more immediate measures that will not contravene such objectives. We cannot expect to see school-feeding programs adopted in all nations in the next few years. But with vigorous FAO leadership, they might in five years be adopted over much of Europe, Russia, India, China, Japan, and South America. Feeding children of school age is likely in practice to decrease rather than increase the birth-rate. It is likely to increase output per worker faster than it decreases the deathrate. Shifting food production toward the protective foods needed for school feeding will reduce surpluses of cereals. The necessary transfer of foods between countries, and planning production to provide the foods for such transfers, can be fitted into a liberal program of international trading. It will be a competing demand for international capital, it is true; but this need not be serious. One cannot describe such an expanding school feeding program by labeling it *ad hoc*, as Professor Schultz does by inference.

As a second example, if the international commodity agreement program is going to get on very fast, it had better begin *ad hoc* fashion—in the form of temporary arrangements, between small groups of nations especially concerned, for transfers of surpluses of food from producing to consuming countries—of not just a few staple commodities, but of almost any type of food that can be stored for a few months—of almost any kind of surpluses, cyclical, chronic, or weather. Professor Schultz has said that the nations do not need publicly managed stockpiles to be sure of having enough

¹ The reviewer's definition of a surplus is any amount that does not, *for any reason*, move through the channels of trade, and he does not put the word in quote marks.

food in poor years—the supplies are always available in other countries. I agree. But even unrestricted trade by itself does not get the weather surpluses consumed where they are needed. Positive action under FAO leadership could do much to increase the international transfer of the weather surpluses of particular countries. It will be out of temporary arrangements of this sort that formal commodity agreements will mostly develop. That this is coming to be realized is indicated by the recent proposals put forward by the United States for handling some surpluses in this way even next year. (These had not been made public when this review was written.)

The Preparatory Commission of the World Food Board will presently finish its job and go home. The FAO can then settle down to a positive program of getting more and better food produced and consumed. Perhaps what the Preparatory Commission draws up will be accepted at the next FAO conference. But it will have no large importance so far as the task of FAO is concerned, unless it makes free use of immediate devices of the sort recently proposed by the United States.

The positive opportunities of FAO are indeed well indicated by the caption from the FAO report which Professor Schultz cites approvingly, "A New Kind of Planning is Needed."³ But this new kind of planning is something much more than he has outlined in his paper. It involves procedure for planned integration of production and consumption on an inter-country basis.

REVIEW OF PROFESSOR SCHULTZ'S PAPER*

ROBERT B. SCHWENGER

Office of Foreign Agricultural Relations

TED SCHULTZ has faced an important subject courageously, approached it broadly and, as he usually does, striven to arrive as quickly as possible at concrete and useful conclusions. He has tackled an immense assignment. It calls for intimate knowledge of the most current developments in an imposing list of disciplines. It calls for a coordination of analysis and presentation for the whole list of them that it would be ambitious to undertake for any one of them. My comments on the portions of this enormous field where I think Ted has slipped up are not, therefore, to be taken as in any way limiting my admiration for the effort, or my concurrence in many of the points on which I will not take time to comment.

1. Near-term Agricultural Policies and International Action

The first comment I want to make concerns the need for international coordination of agricultural policies during the decade ahead of us.

When I was asked to participate in this discussion, I asked myself what I would say if I were in Ted's shoes as principal speaker. At that time I was in London at the International Trade Organization Preparatory Committee Meeting, and it occurred to me that I would tell the story of recent progress toward the integration of United States policies in the fields of trade and agriculture into a program of direct international coordination of national agricultural policies to prevent the type of economic warfare that was so harmful in the interwar period. An at least partially integrated trade and agricultural policy was published in preliminary form over a year ago as part of the United States' "Proposals for the Expansion of World Trade and Employment." Since then, principally at the recent London Preparatory Committee Meeting, it has been adopted in substance as part of the agenda for an International Conference to set up an International Trade Organization. Currently, at the Washington meeting of the Preparatory Commission of the Food and Agriculture Organization, the United States is taking the lead in obtaining international acceptance for the further integration of nutrition

* A paper presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

policy into this integrated agricultural and trade policy. It was this story of emerging integration of policy that I think I would have told. Many policy problems remain, and the integrated policy has yet to be finally accepted and applied; but I believe that important steps have been taken, and I find the story thrilling.

I was taken aback, therefore, to find that Ted started the other way round. He says that little has been done to integrate these three fields of policy.

This difference between us probably arises in part out of the differences in our standpoints. After years of wrestling with the processes of government, I may be too easily impressed by evidences of progress. Ted, on the other hand, is on almost daily speaking terms with the long run, and he might naturally be a bit disappointed with even the most forward step that is actually feasible in the imperfect present. That is as it should be, and I always find it extraordinarily useful to me to be exposed to Ted's challenging long-run views.

But our difference goes farther than just that. Ted's paper seems to imply that no integration of policy is needed to deal with the short-term problems of agriculture. The laws of supply and demand operating through the price mechanism, will take care of those problems. He considers that the real problem of agricultural policy is price instability—seasonal, cyclical, and secular—the phases that are always with us, and he discusses them as they appear from the theoretical equilibrium demand and supply position. Of the enormous potential agricultural price instability associated with the production maladjustments left in the wake of war, he says only that a "major price transition is necessary" because agricultural prices are in a favorable position compared with the prices of other products. He foresees that this transition will be associated with "considerable instability in farm-product prices." He does not consider this a subject for international action. He gives no reason, except to suggest that it would be harmful to delay the transition. He does not expressly associate the price transition with the problem of production adjustment.

To me, that short term "major price transition," and the associated adjustment of production, is the larger part of today's agricultural policy problem. Judging by the past, it may be with us for a decade or more, and it seems to me one of the main subjects in the field of agriculture calling for international action. Ted's im-

plication that we must first let the laws of supply and demand accomplish the adjustment of agricultural prices, and must then tackle the basic agricultural policy problem of how to achieve price stability in the longer period reminds me of the famous hod carrier who deprecated his own contribution to the construction of a building; he said that he just carried the bricks and the mortar up five stories, and the man on the roof did all the work.

Anyone who knows his work realizes that Ted could not have meant to belittle the postwar transition problem. Perhaps he thinks of it in a largely domestic context. Nevertheless, I feel that further consideration of that problem in *this* context should modify some of Ted's conclusions about the need for international action.

I would like to state three general propositions about that transition with which I believe we can all agree:

1. The disappearance of the special demand for agricultural products associated with the war and its immediate aftermath, the reconstruction of agriculture in the war-devastated areas, and the wider application of wartime technological developments will result, even at prices just sufficient to secure adequate returns to efficient producers, in exporting countries' offering for sale quantities of most internationally traded agricultural products greatly exceeding the quantities importing countries will purchase. (That is, there will be "surpluses.")
2. For a considerable number of important agricultural commodities whose production was expanded to meet wartime demand, production will not adjust downward to peacetime-demand levels through the action of price alone except after a widespread and prolonged depression among the producers.
3. Congress has undertaken to support the prices of agricultural products expanded to meet wartime demand for another two years, and Congress will not even then entirely withdraw that support if the consequence is likely to be prolonged agricultural depression. Other governments are similarly committed to help their producers and to limit the free play of the price mechanism.

If these three things are kept in mind, one must take a good deal more account, in the short term, of government agricultural policies and one must pin less hope on price than Ted suggests. Governments committed to help their producers in a world surplus situation mean a perfect setup for the kind of economic warfare we had in the 'thirties, with governments even more intimately involved than they were then, and with every brand of nationalist and isolationist in every country blaming the whole thing on foreigners and clamoring for more and better government aid.

In the United States' "Proposals for the Expansion of World Trade and Employment," and in the intergovernmental discussions growing out of those proposals, this situation, so dangerous for both agricultural and trade policy, is expected to be avoided through multilateral commodity agreements between the very governments that would otherwise be warring for the market. Governments joining the International Trade Organization would thereby be committed to carefully worked out principles governing such agreements and calculated to make them as nearly as possible consistent with an expansionist economy, a high level of trade, and the progressive adjustment of production to such requirements as the world can find means of implementing. The agreements would be coordinated by an international commodity commission which would be part of the International Trade Organization. Above all, the principles would require every government to consult fully, and with due consideration, with every other government substantially affected before embarking on measures of economic warfare of the kind that embittered international relations in the interwar period.

It is hoped that this consultation will lead to the coordination of the policies and programs of the various national governments concerning the great primary-product staples of international trade. In my view, such international coordination is extraordinarily important in the years ahead of us—and it is going forward!

2. *"Buffer Stocks" vs. Commodity Agreements*

My second comment concerns Ted's comparison of buffer-stock proposals with the commodity-agreement proposals I have just been discussing.

He speaks of "buffer-stock operations strictly countercyclical in nature." He says commodity agreements are not suited for such operations, giving as the only hint of his reason the view that commodity agreements are oriented toward the problems of a particular commodity and that those in the Department of Agriculture favoring commodity agreements take a "nationalistic" and "protectionistic" view—looking upon commodity agreements as a means of "bailing out" agriculture. In short, he fears pressures.

On the question of pressures, I would like to point out that commodity agreements, as proposed by the United States and agreed to at London, would give equal voice in substantive decisions to the importing and exporting countries. It is thus hoped to assure

maximum possible opportunity for all interested parties, consumers as well as producers, to get a fair hearing for their points of view. Any price decided upon, or any system of export quotas, would have to be sufficiently reasonable to be accepted by some of the countries having each type of interest. Some existing agreements make this even surer by requiring a two-thirds vote to decide important matters.

What could be said on this point of a buffer-stock scheme would depend on the nature of the organization running it. It is unlikely, however, to be superior in this respect to this vote-sharing arrangement.

In Ted's discussion of the buffer-stock question, the terminology is not always clear and the issues are not very clearly drawn.

Coordinated Commodity Set-up.—For example, one can infer that Ted thinks that a buffer-stock scheme would give less attention to individual commodities than would the proposed commodity agreements of the International Trade Organization. The reason for this seems to be either that he thinks that "specific commodity agreements" would not be effectively coordinated in a central organization or that a buffer-stock scheme would not adapt its general program to the special requirements of specific commodities. Yet a reading, among others, of the International Trade Organization proposals, of the World Food Board proposals, and of Mr. Rieffler's proposal on buffer stocks suggests that, in practice, there might be little if any difference between them on this issue.

Regulation of Production or Marketing.—Another concealed issue is whether or not a buffer-stock scheme should be associated with the regulation of production or marketing. This brings us to the basic point I discussed earlier. For very many agricultural commodities to which a buffer-stock scheme would presumably be applied, production does not react properly to price reductions. The price mechanism will not adjust the production of such products to the demand for them within a reasonable period of time, and if relied on to do so will produce depression and political upheaval before it accomplishes its adjustment mission. In such circumstances, a buffer-stock scheme would either maintain absurdly low prices or pile up stocks. It might even have to do both unless there were controls on production or marketing. Some buffer stocks proponents say that if the stocks grow too high and overproduction is therefore shown to be persistent, the thing to do is

lower the price range. Then adjustment will be forced. They rely on laissez-faire tactics, the impossibility of which was a basic reason why these commodities were to have been made the subject of the buffer-stock scheme.

Sovereignty.—Another issue that might be brought out concerns basic problems of international organization. Some buffer stocks proponents think of a buffer-stock organization as an experiment in cooperation—a yielding of an important portion of national sovereignty in the economic field to an international administrative body. It might be argued that the very failure of national governments to solve the basic problems of agriculture and nutrition would force them to such a step and that the general course of world political and economic integration would thereby be greatly served. Analogy might be drawn with some of the economic devices that served in United States experience to increase Federal functions and to build up confidence in the Federal government as an administrative agency. But it is difficult to see why governments should be expected to yield large areas of sovereignty to a buffer-stock organization with large funds available for use to stabilize the prices of many commodities. They are more likely to yield it, commodity by commodity, under specific commodity agreements. At this period of history, it may be that commodity agreements have more to recommend them than do most buffer-stock proposals from the point of view of advancing the long-run cause of international organization.

Relation to Domestic Prices.—The important economic issue not drawn is whether the stabilization of international prices through some buffer-stock device will have much significance for the stabilization of national domestic price levels. The issue arises because of the extent to which governments have adopted price-support programs of one sort or another. International price stabilization becomes very much less meaningful once a surplus situation appears and the foreign price falls below the domestic price (or unit income) level in many important countries. For those who think in terms of operating through international commodity markets, it may be extremely difficult to find a market price of sufficient economic importance to be worth stabilizing. What, for example, would a buffer-stock organization do about cotton if there was no free market in Liverpool or Manchester and the price in the United States were again frozen at a loan level? Yet in a commodity

agreement there might be a negotiated international price range and provision for the responsibility of different countries regarding stocks!

3. *Concerning International Countercyclical Policy*

Ted's integration of policies concerning agriculture, nutrition, and trade, seems a bit sketchy. Apparently he thinks the thing to do is to rely on countercyclical devices exclusively or as far as possible. He mentions a few proposals for international countercyclical action. He seems, however, to call for rather heavy dependence on Viner's proposal for an international employment stabilization fund with primary reliance on compensatory investment operations. I would like to make one point which seems relevant.

It is an appropriate task of theorists to seek some all-pervasive element—price, the discount rate, government borrowing, consumption expenditures, government spending, or investment—to operate in such a way as to ease most of the problems of the economy. The business cycle is, of course, the great economic problem developing with the industrial revolution. Its solution would ease all our tasks.

We must face the fact, however, that countercyclical policy—whatever may be said of theory—is in a very early stage of development. The countercyclical policies of national governments are hardly better off in this respect than are policies of coordinated or unified international action.

It is my personal belief, however, that when such policies do develop on a relatively successful operating basis, in the first instance at least the policies evolved will be found to include not just reliance on some one or two economy-wide elements. Such elements might play a dominant and defining role, but I would expect a successful countercyclical policy to be made up of a carefully coordinated set of specific measures to deal with specific situations occurring throughout the economy. I would look for a combination of appropriate policies in many fields, including specific policies dealing with special economic problems in trade, nutrition, and agriculture. One can have such a combination and still have effective integration. It does not appear to me to be a valid criticism of policy in any one of these fields to say that it is not, in itself, a complete countercyclical program.

REVIEW OF PROFESSOR SCHULTZ'S PAPER*

P. LAMARTINE YATES

Food and Agricultural Organization

IT IS not only in political life, with superaircraft and atomic bombs, that the United States have to reckon on a more intimate relationship with other continents than ever before; it is also in economic life that they find that their prosperity depends on the links that can be forged across the oceans. From now on, international affairs will assume a new importance to the economic well-being of the United States and, conversely, the affairs of the United States to the well-being of other countries of the world. If the agricultural economists of the United States would try to look at the various countries including their own from a world point of view somewhat in the manner that they are accustomed to look at the various States of the U. S. from a national point of view, they could contribute new concepts of real significance to the formulation of agricultural policy.

Looking from such a world angle at the paper under discussion, it is startling to find Professor Schultz so disbelieving, almost indeed disparaging, in regard to nutritional programs, agricultural price stability, and international commodity agreements. Instead he advocates a more adequate employment policy, national and especially international, coupled with a program of reducing the size of agriculture in food exporting countries.

I will not comment on his and Prof. Viner's international employment policy beyond saying that it seems doubtful whether the sinking of coal mines, the construction of steel mills, the building of railways in the Orient can be started, halted, resumed, and halted again to fit in with the wayward rhythm of the U. S. business cycle.

As for this goal of a smaller agriculture, there are some regions to which it is undoubtedly appropriate. A large part of the world's food exports come from low income countries with backward agriculture and in many cases an over-emphasis on one particular export crop. In these areas to diversify agriculture and to start various industries may well reduce the food surplus available for export.

* A review presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

Professor Schultz, however, is manifestly thinking of the United States, Canada, Argentina, and Australia, high income countries with wide open spaces. I will pass up the question who is producing too much, though his bland assumption that it is these exporters and in no sense the food importing countries looks singularly like a surrender to the protectionism of the latter. His thesis is that the U. S. and Canada, and so on, should take steps radically to reduce agricultural output and the resources used in producing it, while at the same time a few thousand miles away hundreds of millions starve. Why does he advocate this? Is it because the U. S. and Canada could get richer by shifting labor out of agriculture into the production of cosmetics and movies? That proposition is no doubt true, but I cannot believe that such is the intention.

I am prepared to believe that the advocates of smaller agriculture want labor shifted in order to make machinery and capital goods to send by way of foreign investment to help industrialize the less developed countries. On that I would raise a question to which others no doubt have the answer—whether the present industrial labor forces could not produce all the capital goods whose export the U. S. public will be willing to finance by way of foreign lending.

Moreover, suppose the public could be persuaded to agree to much heavier lending, might not persuasion be against their better judgment? The question which economists would have to answer is how the loans could be repaid. Is not the situation materially different than the U. K. in the nineteenth century? She had a ratio of population to local resources which required larger and larger imports of raw materials and food. The United States does not, and if the U. S. is to act as the world's great lender, someone must figure out how she can become the world's greatest importer.

This leads to a further question—What will be the world pattern of production and trade a few decades hence? When the Orient becomes industrialized it will have a greater density of population per square mile than any other continent, even greater perhaps than the United Kingdom. It will be impossible for the Orient to feed itself on any reasonable nutritional standard even if per acre yields were brought up to the level of The Netherlands. The logic is that the Orient when it can afford to will become a permanent importer of a part of its food supply and the tonnage involved will be enormous. The food can only come from the more sparsely popu-

lated continents, Australia, North and South America, and perhaps Africa.

Looked at from an historical perspective, therefore, what Professor Schultz advocates is to take land out of farming which in the not too distant future will most likely have to be put back into farming. Under these circumstances is it so surprising that other people seek an international food program which will cause fewer economic upsets and which will be helpful to the world nutrition in the immediate future? Is it surprising that some people are exploring ways in which food might be made available to the hungry people?

Whatever you may think of these points of view, we clearly need more factual information before we can choose wisely between rival policies. What will be the trend in U. S. demand for each of the staple foodstuffs over the next five years, ten or twenty years? Or perhaps we should aim at setting up alternative trends based on alternative assumptions regarding the size and distribution of national income. Likewise what will be the rate of growth of farm output making certain assumptions regarding technological improvement and price policy?

The Food and Agriculture Organization is vitally interested in such forward estimating and if you people can do some pioneering work for your country, perhaps FAO can persuade other countries to make parallel studies of their conditions and prospects. We need data for all the major countries whether food exporting or food importing. We need to build up a world picture for each of the major agricultural products entering international trade. Nor is this all. We should get our colleagues, the industrial economists, to attempt some measurements of the rate of industrial growth not only for the developed countries but for what is likely to happen in the less developed ones. For example, what could one assume as a reasonable rate of growth of per caput income in India, or in Java, or in West Africa?

We have a very imperfect set of economic tools. We need to make many new ones. Very little is known about the elasticity of demand (at different income levels and with changes in income level either for food as a whole or for individual foods. Little is known as to what the possibilities are of increasing the area under farm crops in the underfed regions of the world and opinions differ widely as to

how far and how fast per acre yields can be raised. Little is known as to how a poor country manages to divert part of its meagre national income to the building up of industries; nor do we know the economic and political consequences of trying to make a very large diversion. One could continue this list for half an hour without completing the major items. I do hope the members of the American Farm Economic Association will spare even more time than in the past on analyzing these world issues.

Meanwhile, FAO is beginning with a somewhat more modest job of short-term forward analysis. One result which is certainly emerging from the deliberations of the Preparatory Commission now sitting in Washington is a recommendation for an International Outlook Conference at which governments can study each others production and consumption programs for the ensuing year and analyze the consequences in terms of international trade. Another recommendation will be for a study of individual commodity situations whether or not the commodities are likely candidates for a commodity agreement under ITO. Without such studies, without some endeavor to project the past into the future, one cannot develop policies which will stabilize agricultural prices internationally. Hitherto such studies have too often been backward looking and mainly of historical interest. If economic analysts are to be of help to statesmen, they need to risk their reputations by peering a little more boldly into the future. Professor Schultz has been a pioneer in this kind of analysis. The world needs many more like him.

REVIEW OF PROFESSOR SCHULTZ'S PAPER*

HELEN C. FARNSWORTH

Food Research Institute

PROFESSOR SCHULTZ has made the interesting proposal that efforts to stabilize agricultural prices at the international level should be confined to reducing the price instability that is of cyclical origin. He has not indicated, however, how he would propose to do this. But in any case we need to consider the question: Would it be feasible, and would it be desirable, to engage in such limited price-stabilizing operations?

Consider first the problem of feasibility. An international price-stabilizing agency might reasonably wish to begin operations in the first sizable economic recession that occurs after the major transition from wartime price levels has been completed. This seems to be in line with Schultz's ideas and on this point I am in full agreement with him. But how would the agency be able to recognize such a recession in its early stages? Unless the recession were an enormous one—like that of the 1930's—there would presumably be much conflicting evidence for the agency to weigh. Indeed, the evidence on price developments, employment, income payments, and business activity in the United States might differ sharply from the corresponding evidence for Britain and various other countries. Such diversity of economic conditions was characteristic of the period from 1922 to 1929. In retrospect, it is not difficult for the National Bureau of Economic Research to date the principal phases of *past* business cycles; but it is a much tougher problem to determine currently what phase of the cycle any particular country is in—particularly in the early stage of recession and of recovery. And if this is a virtually insoluble problem for a single country, what would it be for the world as a whole?

If, however, an international agency were actually to try to stabilize certain agricultural prices contra-cyclically and only contra-cyclically, I suppose the best it could do would be to begin buying operations after some of the major economic indexes for different countries had shown declines of something like 10 percent from accepted normal levels. Then the agency would presumably buy only those commodities that were already materially below their estimated longer-term equilibrium prices—say 10 to 25 per-

* A review presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

cent below, depending upon the commodity concerned. This would probably insure that the agency would never start buying operations except in periods of general recession, and, less certainly, that it would mainly offset cyclically-induced price weakness. But it would also mean that the agency would normally begin buying only in the later stages of economic recession, after considerable damage had already been done and after some agricultural prices had fallen considerably below the agency's potential buying limits. Such late price support would not be of much help as a general contra-cyclical influence except in the most deep and prolonged recessions. Moreover, as one economic series after another showed signs of recovery, the agency would be confronted with the new problem of deciding when it should stop supporting weak commodities and should start to sell from its stocks those commodities that had risen to the agency's potential buying limits.

If it is desirable to reduce the magnitude of fluctuations in agricultural prices—and I believe it is—then I think this problem should be attacked in a broader way. The buffer-stock schemes proposed by the League of Nations Delegation on Economic Depressions and by the British government envisage buying and selling operations by an international agency with a view to reducing extreme short-term price changes, regardless of whether these changes are attributable to fluctuations in demand or to variations in supply.

This broader approach to the problem of agricultural price stabilization seems to me to be better than that suggested by Schultz. Its chief advantage lies in the lessening of major price fluctuations whenever they occur—before they can cause marked damage to producers or consumers, and before they can result in the spread of instability to other parts of the world economy.

The preoccupation of this generation with two world wars and an unprecedentedly severe peacetime depression has led some people to believe (1) that the only price changes primary producers have to worry about are those associated with economic cycles and (2) that those cycles invariably originate in the major industrial countries. Neither of these beliefs appears to me to be well-founded. If you look at the monthly price records for the major agricultural commodities over the past half century, you will see many large price changes that can not possibly be accounted for on the basis of general economic factors, but which must be ascribed to changes

in the supplies of the commodities in question. A large world wheat crop, for example, normally results in a substantial decline of wheat prices throughout the world—in countries that harvest poor and mediocre crops as well as in those favored with bumper crops. Moreover, the price effects of a large wheat crop may be felt for several years during which carryovers may remain well above average size. Such supply and price changes have notably unfavorable effects on the incomes of large groups of wheat farmers, though not, of course, on the incomes of those favored with unusually heavy yields. In contrast, short world crops (not supplemented by large carryovers) normally raise world wheat prices to levels which give unearned increments of income to large groups of producers who have not suffered crop reverses, and who frequently respond to the high prices by expanding their acreage.

Such extreme short-term price fluctuations could probably be beneficially modified by an appropriate buffer-stock scheme operated by an international agency instructed to keep its buying prices say 10 to 25% below, and its selling prices correspondingly above, estimated longer-term equilibrium levels—these levels being subject to annual reconsideration in the light of new information and with reference to the size of the accumulated stocks. The operations of such an agency could probably contribute substantially to the general stabilization of producers' incomes, even though at times its activities would be somewhat destabilizing to the incomes of certain groups. Moreover I believe that buffer-stock operations of this sort, though not 100% contra-cyclical, might be more effective as a general contra-cyclical influence than price-stabilizing operations aimed solely and directly at reducing cyclical price effects. This conclusion is based partly on the belief, held by a number of respected economists, that international cyclical movements sometimes originate in the unfavorable commodity positions of a number of leading primary-producing countries; and that marked instability in the primary-product sector of the world economy tends to spread to the rest of the economy. It would seem desirable, therefore, to reduce the great instability characteristic of agricultural prices, whatever its source or timing.

The really crucial question, I think, is whether a suitable and properly safe-guarded plan for international buffer-stock operations would be sufficiently appealing to the major nations to get adopted and, if adopted, whether it could be successfully administered.

Great danger lies in the possible adoption of an appealing but unsuitable plan that would eventually break down either because exporting countries would get the international agency to establish excessively high buying prices, or because certain major producing countries would continue to operate national agricultural and trade policies that would put an unbearable strain on the international agency. Whether a truly satisfactory buffer-stock plan could or could not be adopted and successfully administered depends to a great extent on what kind of agricultural and trade policies the United States eventually accepts. And these will depend, in no small measure, on whether American farmers can be weaned away from the short-sighted and parasitic agricultural programs they have supported in the past.

AGRICULTURAL LEGISLATION: AN APPRAISAL OF CURRENT TRENDS AND PROBLEMS AHEAD*

ORIS V. WELLS

Bureau of Agricultural Economics

ON AUGUST 14, 1946, the President approved the last of the general bills relating to agriculture, enacted by the 79th Congress, Second Session. Opinions differ but there are some who feel that the enactment and approval of the Research and Marketing Act on August 14 opened a new era in the field of agricultural legislation. Others, however, feel that the bills enacted by the closing session of the 79th Congress brought to an end the war-influenced legislation relating to agriculture and that the actual opening of the new phase will come with the convening of the new Congress, although it is clearly enough heralded in the recent letter from the Secretary of Agriculture to the Chairmen of the Senate and House Committees on Agriculture relative to the Steagall Amendment.

Whichever school we may belong to, one central fact is clear: Agricultural legislation has come to a turning point, and it has come to this turning point not because of the recent shift in congressional control from the Democrats to the Republicans but rather because farm prices and farm incomes have apparently reached their end-of-the-war peak. A considerable agricultural readjustment is now in sight. As a result it seems well worthwhile to review the recent trends in agricultural legislation and to look at least briefly at some of the problems which lie ahead.

As an introduction to such a review, I shall now endeavor to outline some of the outstanding legislative trends in the agricultural field during recent years, especially since the opening of World War II.

In doing this, I shall omit references dealing with or relating to the wartime activities of the War Food Administration. There are any number of questions which could be raised with respect to wartime food and price stabilization activities, but with one exception these are not now questions of immediate future interest. The one exception, of course, are the all-important wartime acts which not only strengthened and extended the already existing agricul-

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tural price support structure but which also specifically pledged the Government to support farm prices at "not less than 90 percent of parity" for 2 years following the close of World War II.

At the same time I shall omit reference to such general measures as the Employment Act of 1946 and the Congressional Reorganization Act of 1946 even though some of the results flowing from these acts may eventually exert a very considerable influence within the agricultural field. In general the purpose of both these acts is to better organize and channel expert opinion for the benefit of both the Congress and the Chief Executive. The Reorganization Act should speed up congressional procedure so that Congressmen may have more time to study and acquaint themselves with those issues which seem most important while the Employment Act of 1946 provides for a Council of Economic Advisers in the Executive Office of the President.

A third field which I shall only mention is Agricultural Credit. There were two leading credit bills before the last Congress which seem to me to have been important. One of them, the Farmers' Home Administration Act of 1946, was passed and approved as Public Law 731 on August 14, 1946. This Act abolishes the Farm Security Administration as well as all functions of the Farm Credit Administration relating to emergency feed and seed loans and in lieu thereof creates a new agricultural agency, the Farmers' Home Administration. The primary purpose of the other proposal to which reference has been made was to shift the Farm Credit Administration outside the Department of Agriculture and place it under the control of a "Farm Credit Board." Attention is called to this issue simply because the so-called Flannagan Bill or its equivalent may again be before the Congress in 1947.

Social legislation—that is, legislation relating to such items as schools, roads, social security, and tenure or working conditions—is a fourth field which I shall do no more than mention. In general, there has not been much new legislation of this kind during the war, at least so far as agriculture is concerned. Basic legislation for the school lunch program was, however, provided by Public Law 396, the National School Lunch Act, approved June 4, 1946, and increased attention to and appropriations for farm-to-market roads were authorized by the Federal Aid Highway Act of 1944.

This then brings me to the two legislative fields on which I should

like to comment in some detail: Agricultural Research and Farm Price Support.

Agricultural Research: We sometimes feel, I think, that the Congress tended to neglect agricultural research and extension work from 1929 forward as it found itself immersed in so-called "action" legislation. However, this situation has now been corrected with the enactment and approval of the Extension Service Act of 1945 and the Research and Marketing Act of 1946.

Actually, however, the Congress did take steps to reinforce both basic research and work in agricultural extension in the middle 1930's as evidenced by the Bankhead-Jones Act of 1935 and Section 202 of the Agricultural Adjustment Act of 1938.

There was a considerable expansion of agricultural extension work during and following 1933, financed by funds transferred from the Agricultural Adjustment Administration. In effect, the Bankhead-Jones Act made this increase permanent. Almost exactly this same pattern has been again repeated. With the coming of World War II and the war food program the work load of the State-Federal Extension Service was again increased, this time on the basis of funds transferred from the War Food Administration. And again the performance of an emergency task has been followed by a substantial increase in the amounts made available for general extension work.

With respect to research, the Bankhead-Jones Act authorized the Secretary of Agriculture and the State agricultural experiment stations to conduct research into basic laws and principles of agriculture and provided a modest increase in appropriations to finance such work. In addition, under Section 202 of the Agricultural Adjustment Act of 1938 Congress provided for the establishment of four regional research laboratories for the purpose of finding new uses and markets for agricultural products and by-products as well as for the maintenance of these laboratories from funds appropriated in the name of agricultural adjustment.

These two earlier acts relating to research and the results which have been obtained had much to do with shaping and selling the Research and Marketing Act of 1946. But there have been other forces as well: One of these is the desire of many Congressmen and agricultural leaders to create the widest possible demand for agricultural commodities during the years ahead. Another is the equally

strong desire of both Congressmen and agricultural leaders that more efficient ways and methods of handling, processing and marketing agricultural commodities be developed.

Specifically, the Research and Marketing Act of 1946 authorizes a gradual increase in appropriations for agricultural research and marketing services, running from \$9,500,000 for the fiscal year ending June 30, 1947, to \$61,000,000 for the fiscal year ending June 30, 1951. These authorized increases fall under four general heads, as follows:

(a) *For payments to State Experiment Stations for research:* \$2,500,000 for 1947, \$5,000,000 for 1948, \$10,000,000 for 1949, \$15,000,000 for 1950, \$20,000,000 for 1951, and unlimited authorizations thereafter; such funds to be distributed, on a matching basis, as follows: 20% equally to each State, at least 26% on the basis of rural population, at least 26% on the basis of farm population, not over 25% for regional research, and 3% for administrative expenses of the U. S. Department, with the further proviso that at least 20% of the funds allotted to the States must be spent in the marketing field.

(b) *To the Secretary of Agriculture for utilization research:* \$3,000,000 for 1947, \$6,000,000 for 1948, \$9,000,000 for 1949, \$12,000,000 for 1950, \$15,000,000 for 1951, and unlimited authorizations thereafter; permits part of this work to be done through contracts with private agencies where this is to the advantage of the Government.

(c) *For cooperative research by the Department with the State Experiment Stations and other agencies:* \$1,500,000 for 1947, \$3,000,000 for 1948, \$4,500,000 for 1949, \$6,000,000 for 1950, and unlimited authorizations thereafter.

(d) *To the Secretary of Agriculture for marketing research and services, with permission to work through State Agencies:* \$2,500,000 for 1947, \$5,000,000 for 1948, \$10,000,000 for 1949, \$15,000,000 for 1950, \$20,000,000 for 1951, and unlimited authorizations thereafter.

Of the above, items (a), (b) and (c) are self-explanatory, but something more needs to be said about item (d). For several years the House Agricultural Committee has been endeavoring to investigate agricultural marketing, or ways to reduce costs and make marketing more efficient. As a result Title II of the Research and Marketing Act goes beyond research and also definitely covers marketing services and the collection of statistics relating to the marketing field. The Congress has recognized the scope and difficulty of the marketing problem and has provided sufficient funds, assuming the authorizations are met, to assure that the entire marketing field can be adequately explored.

Price Support: Shortly following the enactment of the Lend-

Lease Act in 1941, the Secretary of Agriculture issued an announcement in which he undertook to use such funds or general authorities as might be available to assure farmers of specified prices for eggs, hogs, butter and cheese in order to encourage increased production and assure supplies for foreign use. This announcement marked an administrative about-face in more directions than one—that is, the request was for *more* rather than less production and the administrative drive was toward more attractive prices for those commodities which were most wanted.

This action was widely debated and within a relatively short time the Congress passed the so-called Steagall Amendment which very clearly directed the Secretary of Agriculture to assure farmers of satisfactory farm prices wherever he found this necessary in order to encourage the expansion of production of any agricultural commodities other than the six so-called basic commodities, which were already covered under the Agricultural Adjustment Act of 1938. Section 4 (a) of the Steagall Amendment, as it now stands in 1946, reads as follows:

“Whenever during the existing emergency the Secretary of Agriculture finds it necessary to encourage the expansion of production of any non-basic agricultural commodity, he shall make public announcement thereof and he shall so use the funds made available under section 3 of this Act (funds which the Commodity Credit Corporation is authorized to borrow on the credit of the United States); or otherwise made available to him for the disposal of agricultural commodities, through a commodity loan, purchase, or other operation, taking into account the total funds available for such purpose for all commodities, so as to support, during the continuance of the present war and until the expiration of the two-year period beginning with the 1st day of January immediately following the date upon which the President by proclamation or the Congress by concurrent resolution declares that hostilities in the present war have terminated, a price for the producers of any such commodity with respect to which such announcement was made of not less than 90 per centum of the parity or comparable price therefor. The comparable price for any such commodity shall be determined and used by the Secretary for the purpose of this section if the production or consumption of such commodity has so changed in extent or character since the base period as to result in a price out of line with parity prices for basic commodities. Any such commodity loan, purchase, or other operation which is undertaken shall be continued until the Secretary has given sufficient public announcement to permit the producers of such commodity to make a readjustment in the production of the commodity. For the purpose of this section, commodities other than cotton, corn, wheat, tobacco, peanuts, and rice shall be deemed to be non-basic commodities.”

There are a number of things about this amendment to which I should like to specifically call your attention.

The first of these is that the Steagall Amendment is not in itself a complete farm price support program. Actually, the Steagall Amendment only applies to non-basic commodities for which the Secretary of Agriculture has made public announcement that substantial increases in production were needed in connection with the war effort. The Steagall commodities are hogs, eggs, chickens (with certain exceptions) and turkeys, milk and butterfat, dry peas of certain varieties, dry edible beans of certain varieties, soybeans for oil, peanuts for oil, flaxseed for oil, potatoes and sweetpotatoes, and American-Egyptian cotton.

The second point to which your attention is called is the fact that the Steagall Amendment provides that price supports for Steagall commodities shall be at *not less* than 90 percent of the parity or comparable price therefor. Current support prices for a considerable number of commodities are well above the 90 percent level.

In the third place, your attention is specifically called to the time period covered. That is, prices are to be supported for a sufficient period to allow the "producers of such commodities to make a readjustment in the production," or more specifically "until the expiration of the two-year period beginning with the first day of January immediately following the date upon which the President by proclamation or the Congress by concurrent resolution declares that hostilities in the present war have terminated."

The fourth point to be noted is the fact that the amendment provides that prices may be supported "through a commodity loan, purchase or other operation"—that is, the particular method, the specific place or market level at which the support shall be applied, and adjustments for such factors as grade and seasonal differentials are all items which are left for administrative determination—and as you well know, a wide variety of support mechanisms have been and are being employed.

There are two further items to which attention should perhaps be called. First, the Steagall Amendment provides for supporting Steagall commodities at their parity prices or comparable prices, whichever are applicable. Parity prices are prices which will give to the commodity a purchasing power in terms of articles ordinarily purchased by farmers equivalent to its purchasing power in a particular base period, usually 1910-14. But the amendment also

provides that a comparable price for any commodity shall be determined and used if the production or consumption of the commodity has so changed in extent or character since the base period as to result in a price out of line with parity prices for basic commodities—corn, cotton, wheat, tobacco, peanuts and rice. So far comparable prices have been used for soybeans, peanuts for oil, and for dried field peas under the Steagall Amendment.

A second matter to be noted is the kind of conditions which the law permits to be attached to support price benefits. In this connection, the Solicitor of the Department of Agriculture has indicated that:

“The Steagall Amendment provides for continuing price support for a two-year period after the war, when the need for increased production will probably have decreased considerably. Since the purpose of the two-year provision was to enable farmers to readjust their production to normal by the close of the two-year period, it is reasonable to conclude that production adjustment conditions related to changes in production needs may be imposed.”

Actually, no such production adjustment conditions have yet been imposed, but such conditions have been announced in connection with the potato program for 1947.

There is a real question, however, as to how or in what manner prices can be supported or maintained for cooperating producers who are willing to hold their acreage or marketing to some reasonable level, without at the same time supporting prices or holding the price “umbrella” over everyone else who wants to produce or market the commodity concerned. In the case of the so-called basic commodities, the Agricultural Adjustment Act of 1938 provides for producer referenda and assuming they are favorable, for the imposition of marketing quotas and for penalties on non-cooperating producers up to an amount equal to 50 percent of the market value of each of the commodities concerned. The Steagall Amendment contains no such provisions, although it clearly indicates that the necessary adjustments in production are envisioned.

As indicated earlier, the agricultural price support program rests on a much wider base than the Steagall Amendment. The Agricultural Adjustment Act of 1938 authorizes the Commodity Credit Corporation to make loans on any agricultural commodity, while the Stabilization Act of 1942, as amended, provides that the Corporation shall make loans at 90 percent of parity on corn, wheat,

tobacco (with some exceptions), rice, and peanuts and at 92½ percent on cotton for crops harvested through the two-year period beginning with the first day of January immediately following the date on which the President or the Congress declares hostilities to have terminated. These commodities, the so-called *basic* commodities, constitute a second class of agricultural commodities for which price supports are assured.

There is, however, still a third class, which we may call the *other class* of agricultural commodities within the support price field. Price supports for this third class are permissible rather than mandatory and can be carried out under the general authority of the Commodity Credit Corporation, under the authority relating to the so-called "Section 32" which authorizes the appropriation of one-third of the tariff revenues for the purposes of removing agricultural surpluses and finding new uses for agricultural commodities, and under Section 4 (b) of the Steagall Amendment, which provides that:

"It is hereby declared to be the policy of the Congress that the lending and purchase operations of the Department of Agriculture (other than those referred to in subsection (a)) shall be carried out so as to bring the price and income of the producers of non-basic commodities not covered by any such public announcement to a fair parity relationship with other commodities, to the extent that funds for such operations are available after taking into account the operations with respect to the basic commodities and the commodities listed in any such public announcement and the ability of producers to bring supplies into line with demand."

Suppose we now turn from the authority or legal background for the agricultural support price program to some of the questions which are now being or are likely to be raised with respect to its operation, especially operations under the Steagall Amendment.

One of these is the question as to whether the parity index or parity prices should or should not be revised. As a matter of fact, the Secretary of Agriculture has indicated on a number of occasions that he feels farmers and their representatives should give serious consideration to the manner and extent to which the parity formula should be revised.

Several of the farm organizations are at work on this parity problem. You will find, for example, that representatives of the Farm Bureau, the National Grange and the Cooperative Council have recently indicated that they have agreed on certain basic

principles. As I understand their views, these organizations believe the present parity formula should be retained during the two-year postwar support price period for the basic commodities, that consideration should be given to recalculating parity for certain of the non-basic commodities as early as possible, and that the parity formula itself should be revised at the expiration of the support period as provided under the Steagall Amendment. With respect to this general revision they recommend that careful consideration should be given to the use of a ten-year moving average to determine relative prices, with the general level adjusted to the 1910-14 over-all parity relationship. They also indicate that the inclusion of an allowance for farm labor costs should be considered.

The question as to the relationship between several parity or comparable prices will become especially important if and as farm prices move downward. There seems to be general agreement, for example, that the current minimum legal support level is likely to result in rather favorable prices for potatoes—so favorable indeed that very large quantities will have to be purchased and disposed of for non-human use unless acreage allotments or other means of restricting the quantities which might come within the price support program are developed. On the other hand, there also seems to be general agreement that the reduction of dairy prices to the minimum support level would result in serious shortages of dairy products in terms of either normal per capita consumption or the amounts of such products needed to maintain an adequate nutritional level. This is a question, of course, which also concerns the *basic* commodities, as well as the commodities covered under the Steagall Amendment.

Another question which will have to be faced in the near future relates to the Commodity Credit Corporation and the extension of its legal life beyond June 30, 1947. This Corporation, which is now the chief financing agency in the price support field, was created under the laws of the State of Delaware pursuant to Executive Order 6340, dated October 16, 1933. The Corporation has by various acts of Congress been continued as an agency of the United States Government for successive periods of two years each, the most recent extension being until June 30, 1947. In this connection, it should be noted that the recent Government Corporation Control Act requires all corporations acting as agencies of the United States to have a federal charter by July 1, 1948. The

capital of the Commodity Credit Corporation is \$100,000,000, while its authorized borrowing power on the basis of the credit of the United States has been increased from time to time until it is now \$4,750,000,000.

Congress will also have to consider a number of questions relating to the conditions under which the Commodity Credit Corporation may dispose of such agricultural commodities as come under its control.¹ The latest Act continuing the Commodity Credit Corporation as an agency of the United States (the Act of April 12, 1945) prohibits, with certain exceptions, the disposition by the Commodity Credit Corporation of farm commodities at less than the parity or comparable price for a period of two years after the war. However, the Act of April 12, 1945, permits the disposal of any commodity below the parity or comparable price if it has substantially deteriorated in quality or if there is danger of loss or waste through spoilage; permits the sale of wheat for feed at less than parity, but not less than the parity price for corn; and permits the sale of farm commodities below parity or the comparable price if they are sold for seed or are sold for new or byproduct uses or, in the case of peanuts, for the extraction of oil.

The Surplus Property Act of 1944 also contains a significant exception to the restriction applicable to the disposition of farm commodities. That act authorizes the Corporation to dispose of or cause to be disposed of for cash or its equivalent in goods or for adequately secured credit for export only and at competitive world prices any farm commodity or product thereof without regard to restrictions with respect to the disposal of commodities imposed upon it by any other law so long as there is not a domestic shortage or need for any such food or food product.

All of these specific questions are of interest and several of them are certain to be discussed, perhaps decided, by the Congress during

¹ A related item, but again one that may well be discussed in the coming Congress, is the extension or widening of the scope of "Section 22." This section, which is now carried in the Agricultural Marketing Agreement Act of 1937, as amended, was originally Section 22 of the Agricultural Adjustment Act of 1933. It provides that the President may take certain measures—quite effective measures with respect to raising tariffs or fixing import quotas, where such measures are necessary to prevent imports from dissipating the effects of agricultural programs carried out under Section 32, under the Agricultural Marketing Agreement Act of 1937 or under the basic commodity sections of the Agricultural Adjustment Act of 1933. But Section 22 as it now exists does not provide for such offsetting action in the case of commodities covered under the general activities of the Commodity Credit Corporation or commodities covered under the Steagall Amendment.

the year ahead. But the general question as to whether farmers are going to maintain or further increase production on the one hand and whether we as a nation can maintain full employment and the general price level on the other are even more important. Should we fail, the legislative questions before the new Congress or its successor will be far more serious and far more difficult than those so far outlined.

Even with conditions as they now are, however, there can be no doubt but that a wide range of questions relating to the disposal of agricultural commodities will be before the Congress during the years immediately ahead. The utilization and marketing sections of the new Research and Marketing Act are designed to gradually widen the market for agricultural commodities, and there are a number of other bills or proposals which some feel might yield significant results—for example, the Aiken-LaFollette Food Allotment Bill. This Bill which was rather widely discussed during the last session of Congress was designed to substantially increase food consumption of low income families by making it possible for any family to obtain a satisfactory diet at a cost equal to 40 percent of its average monthly income—that is, enough food stamps would be supplied any family in return for 40 percent of the family income to allow an adequate diet to be purchased.

Meanwhile, the alternatives to maintaining demand and finding at least a reasonably satisfactory solution to the surplus disposal problem are simple indeed: Either the agricultural support program fails or farmers will again find themselves forced to ask for and use acreage and marketing controls, very likely on a much wider range of commodities than those for which such controls are now provided under the Agricultural Marketing Agreement Act of 1937 and the Agricultural Adjustment Act of 1938.

LEGISLATIVE PROGRAM OF THE NATIONAL GRANGE*

ALBERT S. GOSS

The National Grange

THE legislative program of the National Grange goes far beyond the bounds of what is ordinarily considered a farm program. Grange leaders and Grange people have found that their economic welfare is as dependent upon general economic policies and the economic policies of other groups as upon a so-called farm program. Our legislative program, besides involving matters of economic welfare, also involves numerous social matters such as schools, conscription, national defense, international affairs, health, movies, public morals, international relations, and many other factors that affect the farm family. The Grange is truly a family organization and is interested in everything affecting the welfare of the farm home.

An indication of the broad scope of the problems with which the National Grange concerns itself and the importance attached to them is found in our committee structure. Besides those dealing with strictly Grange activities, we have the following session committees:

- | | |
|---------------------------|---------------------|
| 1. Agriculture | 6. Legislation |
| 2. Cooperative Activities | 7. National Welfare |
| 3. Education and Health | 8. Taxation |
| 4. Home Economics | 9. Transportation |
| 5. Juvenile and Youth | |

During the past year we have had the following intersession committees which have a more continuing job, often involving research or the development of some definite project.

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|----------------------|-------------------|
| 1. Movies | 5. Health |
| 2. Youth | 6. Juvenile |
| 3. Fertilizer | 7. Home Economics |
| 4. Cooperative Study | 8. Insurance |

Because all the actions of the National Grange cannot be considered here, only the farm program and certain other actions we consider most important will be discussed.

During its eighty years life span, the Grange has developed a certain economic, political, and social philosophy that is reflected

* A paper presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 28, 1946.

in our action on legislation. In recent years we have used our three Guideposts to test the soundness of every kind of economic proposal under consideration. These are:

- (1) All prosperity springs from the production of wealth, or anything which retards the production of wealth is unsound.
- (2) The compensation of each should be based on what he contributes to the general welfare.
- (3) The prime purpose of government is to protect its citizens from aggression—both physical and economic.

Guide Post No. 1 seems too simple to merit discussion, yet it is amazing how many proposals in industry, labor and in agriculture violate this basic economic truth. We believe in an economy of abundance. Six million individual producers, all subject to the vagaries of the weather, cannot produce crops always sufficient to meet the consumer's needs without producing many surpluses. The heart of the farm problem lies in developing a marketing system which will prevent these surpluses from destroying those who assure us against want by producing them. We believe the answer is neither the destruction of crops, nor limiting production in order to force up prices, but rather to divert surpluses to some useful purpose, and to develop a marketing system such that the primary and secondary markets combined will yield a compensatory price at a not over incentive level.

Guide Post No. 2 strikes strongly at monopoly, whether in the field of industry, labor, agriculture, or wherever found. The farmer wants to work for what he gets, and get what he works for. The present tendency to get all one can, with as little work as possible, will lead to national poverty,—not prosperity. Restricting output, feather-bedding, reducing all men to a common earning power, are thoroughly unsound practices, all too common today. Our economy should encourage every individual to develop the best he has in him by rewarding him for what he does. The farmer who gets no income unless he first produces the wealth from which income comes, is a firm believer in making the individual enterprise system work.

Guide Post No. 3 must be considered broadly. The government owes no man a living. Its chief function is to see that all have an unmolested opportunity to develop their own lives in their own way so long as they do not impose on others. Such a service of protection may take the form of education, or a public domestic water system,

or many other forms. We have sought a sharper definition of the sound fields of government operation and private enterprise, but have never found one that exactly suits us. Possibly a fairly close approach to our thinking would be: "The government should confine its operations to such essential fields of activities as the people can not reasonably perform for themselves, and the control should be kept as close as possible among the people directly concerned."

To a considerable extent our economy is and must be a regulated economy. Particularly with the growth of large and powerful economic interests, the Government must prevent aggression upon the general welfare. In fiscal, monetary, and all other policies the Government should exert its full influence to stabilize our economy at high levels of production and employment. If the principles of Guide Posts No. 1 and 2 are observed, any governmental action will be in the public interest, but we are opposed to legislation which unduly restricts the freedom of the individual.

The Grange also believes that where a problem can be solved at the State or local level, it should not become the subject of Federal legislation. It is interesting to note that the State Department and Army in their program to democratize Germany came to the full realization that a democracy is more than a country where people can choose their leaders by ballot. Unless Government is close to the people so they can understand it and participate in it, they are soon electing a dictator. Eventually, the great powers of government are used to mold the thinking and lives of the people toward totalitarianism, and sooner or later, free and open elections are abolished.

At its eightieth annual session last November, the Grange adopted a ten-point Platform for Agriculture. Each point will be stated and discussed separately.

1. *Conservation of our basic natural wealth of soil and timber must be promoted through sound soil-building, water-conservation and fire-prevention programs on a self-sustaining basis.*

On conservation, we adopted a very comprehensive statement. We believe that conservation is largely a problem of education and urge more education in our schools and colleges. We are opposed to subsidies to pay the farmer for something he should do in his own interest. Where land is seriously abused, and the public welfare is thus invaded, we would favor land-use ordinances, compulsory controls, or conservation taxes. This is a matter for state and local governments.

We approve the system of Soil Conservation Districts organized by farmers under state law for the purpose of dealing with problems in soil erosion, water conservation, soil fertility, and land use, and urge that farmers within these Districts exercise their full opportunity to plan and direct programs. All duplication of public services should be eliminated. This can be done with proper cooperation at the operating level.

We favor keeping the Soil Conservation Service in the Department of Agriculture, the retention of its present functions and independence, and urge that adequate funds be provided for conservation research and surveys, and for the extension of needed technical assistance and equipment to Soil Conservation Districts.

2. Farmers' equitable share of the national income must be secured through a modernized parity and obtained through fair market prices rather than by subsidies. Support prices are justified where necessary to assure consumers adequate supplies and producers a fair price.

It is difficult to conceive of legislation involving loans, floors, ceilings, tariffs or any question touching on equitable prices, or upon economic relationships between agriculture and the rest of our economy without some sort of measuring stick or thermometer to use as a base. Such a measuring stick should never be confused with legislation designed to accomplish some economic objective. We need an equitable parity formula to replace our present antiquated unbalanced formula, with its many exceptions and comparable prices which make it almost meaningless.

I believe I can say that the Grange has taken the lead in recommending to Congress the modernization of the parity formula. We also favor the inclusion of labor in the formula. If the cost index theory is sound, it should include every item entering into farm costs. The Grange parity formula adopts the 1909-14 period as the base for indicating the proper relationship of agriculture to other segments of the economy. Thus far the Grange formula is the same as the existing parity formula. However, instead of accepting the price relationship that existed between commodity prices in 1909-14 as being sound today, the Grange formula would use the price relationships that have existed in the most recent five or ten years. It would be a moving average to keep up with the times. That is why we call it modernization.

Putting it simply, we would use the same base period (1909-14) and the cost index method (properly weighted) to determine the

ups and downs in the general price level. We would then calculate the average farm commodity selling price for the last 5 or 10 year period. Then the price of each commodity during such 5 or 10 year period would be adjusted upward or downward by the percent necessary to make the 5 or 10 year average conform to the cost index. While admittedly not perfect, it is so far ahead of our present meaningless mess that it should be promptly adopted without waiting another dozen years for the perfectionists to bring in an answer which they may never find.

We have no faith in any magic remedy which could be applied to all commodities. Different commodities require different treatment. We favor a Surplus Commodity Commission which would have available a stock of remedies to be applied where needed largely as determined by vote of the producers, any floors being of the "stop-loss" character with adequate margins for commercial operations under normal conditions.

3. *We shall continue as in the past to encourage both marketing and purchasing cooperative farmer organizations, as the first reliance for adjusting and stabilizing markets in the interest of both producers and consumers.*

The Grange has always been a strong supporter of both producer and consumer cooperatives. With the exception of mutual insurance associations, where the success depends to a large degree on the selectivity of the risk, most of our cooperatives operate on the open door basis, with no farm organization membership requirements, and no dues check-offs. Our support is clearly because we believe in the objectives of the cooperative way of doing business. We are strongly opposed to the efforts of the National Tax Equalization Association to secure legislation taxing patronage dividends. We believe it is actuated by a desire to eliminate competition from a very efficient method of doing business by the tax route.

Because small groups of farmers have seldom had access to credit on practical terms, we have supported the REA and the Federal Land Banks, Production Credit System and the Bank for Cooperatives.

The National Grange has adopted a statement of eight principles to govern cooperatives and in effect stating what we believe is a true and ideal cooperative. These principles are:

1. Provide for full ownership and control by the member patrons.
2. Provide for one member one vote.

3. Limit substantially all business activity to lines in which memberships have a clearly demonstrated need of service.

4. Where the capital accumulated has no relationship to patronage, interest payments should be limited to a reasonable rate and treated as a cost of operation.

5. Limit non-member business to an absolute minimum and in no case to exceed the amount as set forth in the Agricultural Marketing Act as amended June 3, 1935.

6. Provide for the distribution of all savings and the allocation of reserves to members and non-members on a patronage basis and provide for the distribution of all assets above par value of capital stock in the event of liquidation on a patronage basis.

7. Membership to be voluntary upon the payment of required fees, either in cash or by applying accrued savings to the payment of fees when authorized to do so in writing.

8. Provide for refunds of accrued savings held for operational purposes for deceased members and for others when membership is terminated for legitimate reasons on the basis of the capital revolving fund plan.

4. *The Grange supports efforts of the Council of Economic Advisors created by Congress for development of a "stock of remedies," for emergency actions in meeting economic dislocations and restoring an economy of balanced abundance.*

This has already been discussed.

5. *We urge extension of the Marketing Agreements Act to include producers of commodities which can use it to an advantage in securing for consumers adequate supplies at reasonable prices, while at the same time protecting producers against seasonal market dislocations.*

6. *We favor use of marketing quotas, when approved by two-thirds of the growers voting in a referendum, for preventing surpluses from creating market gluts; supported by a multiple-price system domestically for utilization of surpluses.*

In these two points we urge extension of the Marketing Agreements Act so that more producers can have machinery for dealing with surpluses. Marketing agreements have a permanent place in taking care of the erratic surpluses that characterize agricultural production. They are also the proper means for handling chronic overproduction, until a sound adjustment in production can be worked out. Rather than curtailing and regimenting production we believe in diverting surpluses to lower uses under a multiple

price system. While we believe that we must attain reasonably balanced production, we believe this can be accomplished by marketing methods and the advice to farmers which flow from them, and we are opposed to regimented acreage control except as a last resort.

7. *We favor extension of international trade through commodity agreement programs and the use of such devices as the Export Deben-
ture Plan and Equalization Fee, for assuring American farmers a fair
share of world markets, and the adoption of safeguards which will
protect domestic producers from imports in such volume as to destroy
the American market for American producers.*

Three-quarters of the world's population are farmers,—the greatest block of potential purchasing power on earth. We recognize that when the producers of one nation are played against those of another nation to drive to unconscionable levels the prices of the surplus commodities which seek world markets, the effect is to depress domestic markets also, both for the commodity thus marketed and for competing commodities. This lowers the purchasing power of the greatest consuming group on earth, and is reflected in less industrial production, less employment and lower standards of living. Our first task then is to seek stability of world markets at reasonably compensatory levels.

Protecting the American market for the American farmer merits further comment. We can grow bananas in Florida, but no one would advocate a tariff on bananas which would raise prices to a level to make such operation profitable. On the other hand, if the importation of a few carloads of butter, properly manipulated, can be used to hold dairy prices to an unjustifiably low level, and lower the standards of living for several millions of farm population, we are destroying a wealth producing industry for a few cents gain which does far more harm than good. Our policies have been developed from hard contact with results, and we have not been impressed with theories which run counter to our experience. Generally speaking, though not without exceptions, we believe that we should not erect tariff walls against natural advantages of foreign nations, but we should protect our own producers against differences in cost of production caused by low standards of living, or artificially affected price and wage structures.

8. *We favor establishment of a health program which would include
preventive medicines; make adequate hospital and medical facilities*

available to all areas through cooperative efforts; and the establishment of a Federal Office of Nutrition to cooperate with state, local and private agencies in promoting improved diets.

Several years ago, Grange people became very interested in health programs. Now that Congress has passed the Hospital Survey and Construction Act, our Grange leaders in most States will be very active in securing the necessary complementary state legislation. Also, local communities will need to be informed of the procedures they must follow to secure the aid funds. We have urged our people to seek strong representation for the farmers on the State Advisory Hospital Councils set up for the hospital program.

The National Grange has endorsed hospitalization and surgical insurance as well as group service arrangements for hospital, surgical, or comprehensive medical care. We also look with high favor on cooperative medicine. It is preventive medicine and generally it has meant group practice. Best of all, the cost of comprehensive medical care has been very reasonable under this arrangement. In some states, laws to permit the organization of health cooperatives will be necessary.

We believe in improved diet through education and not through subsidy, except for the school lunch program. While generally opposed to subsidies, we view the school lunch program more as a part of a sound educational system than a subsidy. An adequate noon lunch is not only a definite aid in attaining high scholastic performance, and better physical standards, but it is also an effective means of teaching proper nutrition, from which the parents indirectly derive as much benefit as the pupils. We believe the program has adequately proved its worth.

9. *We favor Federal and state guidance and assistance in the development of sound, long-range readjustment programs for areas where changes in agricultural production have created serious social or economic problems.*

Here we have in mind particularly the Cotton South, some of the cut-over areas, and badly eroded areas. Possibly certain areas have the wrong kind of agriculture; the farms may be too small; the area may be totally unsuited to any kind of agriculture; too many people may be in the area; and the school and health program may have broken down to make matters even worse.

Education in better farm practices may be quite as important in

some impoverished areas as education in the three R's. Some of the people may need to be given vocational training for industrial jobs, and some may need financial help by state or federal agencies in getting to other jobs. Possibly, a program could be worked out to make it feasible for private industry to set up industrial plants in such areas. Mechanization of the Cotton South will create many social problems which may require Federal and State assistance.

10. *We urge consolidation and coordination of Federal Agencies participating in the Agricultural Research and Marketing Act, in order to centralize authority, eliminate duplication, and obtain maximum efficiency. We recommend that each cooperating state appoint advisory committees patterned after the National Advisory Committee, to work with state agencies in developing sound research programs.*

We confidently expect that the Research Bill, if properly administered, will prove to be one of the most constructive pieces of legislation ever passed as an aid in meeting the farm problems. Untold possibilities exist for better marketing with substantial savings for producers and consumers alike.

Research in marketing should go beyond the physical handling of the crop and include a study of the economic forces which have so frequently permitted a small surplus to drive the whole price structure down to unconscionable levels. It is hoped that those who engage in the study will not be such worshippers of the past, and such devotees of charts and tables, that they cannot see the possibilities of new and better methods merely because they have not been employed before.

At our Annual Session this past November, the Delegate Body focused attention upon and adopted this paragraph in my annual address:

I also recommend that the Grange take the lead in each State in setting up a state-wide committee composed of representatives of farm and co-operative organizations to confer with the Land Grant Colleges, the State Departments of Agriculture, and others in an effort to see that every phase of the marketing problem is fully studied, *and that State legislators are fully informed as to the necessity for matching funds.*

Besides the Grange Platform for Agriculture, our program touches on many other matters. After months of study, our Fertilizer Committee came out with a comprehensive statement on fertilizer policy. We believe that fertilizers are basic to a sound agricultural program. Therefore, industry must provide a supply

of high grade fertilizers at as low a cost as is consistent with efficient production and distribution with due allowance for a reasonable profit. All commercial production of fertilizers should be by private industry, including farm-owned and controlled cooperatives, unless the advantage of government operation is clearly demonstrated. Furthermore, our national policy should provide for the exploration and development of natural resources, research in fertilizer production and use, an educational program to secure widespread adoption of improved fertilizer practices, and the adoption and improvement of modern fertilizer control laws by states.

We believe that expansion of educational work in the use of fertilizer and lime should be by existing educational agencies of the State and Federal governments. We believe that a part of the funds under the Research and Marketing Act of 1946 should be utilized for support of an integrated State-Federal research program on production and use of fertilizer in crop production and soil improvement. Increased use of the farm unit for both research and demonstration is recommended. Our fertilizer policy endorses the traditional American policy of no tariff on fertilizer and calls for strict enforcement of anti-trust laws.

The National Grange along with two other farm organizations still seeks legislation on certain farm credit matters. Several years ago the American Farm Bureau Federation, the National Council of Farmer Cooperatives, and the National Grange created a joint farm credit committee to study our whole cooperative and governmental farm credit system. Out of this study came a set of recommendations designed to provide ample credit for farmers and to eliminate duplication and fill any gaps. As a result, the Flannagan Bill, H. R. 3422, was introduced and hearings were held. It was early determined that it would be unwise to attempt to rewrite a complete farm credit structure from top to bottom in one bill, but that the first step would be to establish Farm Credit as an independent agency, under a bi-partisan board such as has been found necessary for commercial credit. The board should be a policy-making board only, employing administrators for the various types of credit, including long-term, short-term, and marketing credit on a cooperative basis, and emergency and rehabilitation credit on a direct loan basis.

We strongly insist that the Federal land banks and the produc-

tion credit associations be maintained as cooperatives. We oppose any measure which would place the employees of District Farm Credit agencies and national farm loan associations under Civil Service, as we believe these cooperative institutions must continue to be owned and controlled by the farmers.

The National Grange will seek the extension of Social Security to include the farmer and farm workers insofar as it applies to old age and survivor benefits. We are now trying to develop a practical means for doing this. We do not see how the unemployment insurance program could be successfully extended to agriculture.

We have long hoped that the Extension Service would insist on complete independence of operation so far as control by business or farm organizations is concerned, and confine its activities to the educational field. Such a situation largely prevails in a majority of States but in others serious abuses exist. If not corrected voluntarily, farmers will have to seek corrective legislation.

Appropriations and taxation will be important matters before the next Congress. We are opposed to any reduction in taxes unless governmental expenditures are reduced to such a level as to leave a substantial surplus for debt reduction. This surplus is essential not only as a matter of reducing the national debt but also to combat inflation. We believe that many governmental activities should be terminated and that great savings can be achieved by greater efficiency in the administration of essential services. We will recommend that the \$500 exemptions and allowance for dependents be not increased until the budget is safely balanced. We favor the elimination of double taxation in the field of corporate income.

We seek repeal of all Federal excise taxes on motor fuels and parts so that this field will be reserved to the States for highway construction, maintenance and patrolling purposes. We are opposed to the diversion of funds collected for general highway purposes to non-highway uses.

Our transportation policy favors the maintenance of competition among the various forms of transportation by restricting the ownership of one mode of transportation by another. The consolidation of competing lines, if within one form of transportation, should be permitted where it will not adversely affect the public interest. We will support Federal appropriations for highways, particularly appropriations for farm to market roads.

Labor legislation will be another one of the major problems

before this coming Congress. The National Grange will urge upon the Congress that it review and reconsider existing labor legislation with a view to removing many inequities, establishing full and equal responsibility and benefits for employers and employees without discrimination. We will also recommend the establishment of labor-industry courts. If the decisions of these courts are not accepted and a strike or lockout results in a public utility or other industry seriously affecting or endangering the public health and safety, then these courts should have full powers to order state or federal seizure and operation.

Unless a 6-day week can be assured in terminals handling perishable fruits and vegetables, we may be forced to seek corrective legislation.

The Grange is opposed to peace-time conscription. We believe that if adequate pay, and comprehensive educational opportunities were available in our military services, and if there would be a general cleanup in the moral standards, adequate enlistments could be secured on a voluntary basis.

We are wholeheartedly behind the United Nations and are supporting the F.A.O. and the International Federation of Agricultural Producers as worthwhile developments in building peace.

I have tried to pick out the highlights of our legislative program, but as I have reviewed it, I feel that I have just scratched the surface, both in the discussion of the subjects mentioned, and in the selection of subjects in a field made broad by the nature of our organization and our many years of activity. After all, it is quite an undertaking to try to straighten out our whole nation and the world in general in the light of the mess we have all made of it.

POSTWAR AGRICULTURAL PROGRAM*

W. R. OGG

American Farm Bureau Federation

THE American Farm Bureau Federation believes that it is extremely important that the gains which have accrued to farmers as a result of basic agricultural legislation enacted in the past be preserved and strengthened.

We cannot tolerate again a collapse of our agricultural economy such as occurred after World War I, when the bottom dropped out of farm prices, and for twenty years agriculture was on a basis of economic disparity with industry and labor. During this period, farmers became more effectively organized, and forged a national program and policies designed to assure economic equality with industry and labor. The American Farm Bureau Federation will fight to retain this fundamental principle for a national farm program that will maintain a prosperous agriculture on a basis of economic equality with industry and labor. We believe this is essential not only to the well-being of agriculture, but also to the Nation as a whole.

We recognize, of course, that changing conditions and needs will require adjustments in the agricultural program to meet these changes.

The American Farm Bureau Federation has not yet determined its permanent long-time postwar agricultural program. It is perhaps too early to appraise fully and accurately the postwar situation from a long-time standpoint and to determine permanent postwar policies.

Recognizing, however, the necessity for adjustments in the agricultural program to meet changing conditions in the postwar period, the voting delegates of the Federation, representing over one million members in forty-five States and Puerto Rico, urged that "thorough studies be undertaken immediately of programs for basic agricultural commodities and other commodities to determine what improvements and modifications are required in order to develop a permanent long-time agricultural program that will be more nearly self-sustaining, and which will effectively assist

* A paper presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 28, 1946.

in correcting the basic causes of disparity between agriculture, labor and industry.”

Fortunately, we have on the statute books legislation to safeguard agriculture during this period of readjustment, until a permanent long-time agricultural program can be developed. The Bankhead Mandatory Commodity Loan Act and the Steagall Act—both of which were sponsored by the American Farm Bureau Federation, and enacted into law in their original form in 1941—not only served as the basis for the Government’s wartime food program, but also as a bulwark to safeguard farm prices and farm income during the difficult period of postwar readjustment. This legislation was designed not only to enable farmers to attain all-out production to meet wartime requirements, but also to prevent a postwar collapse of farm prices such as followed World War I.

It took many years of struggle, sacrifice, and effort on the part of organized farmers to secure the adoption of a national policy of economic equality for agriculture. This principle is embodied in the parity concept. The American Farm Bureau Federation will resist any attempt to destroy the parity concept. We have recognized the need for adjustments in the parity goal for certain commodities, and have recommended that steps be taken to obtain these needed adjustments to give equitable treatment to livestock, livestock products, dairy products, and any other agricultural commodity that is not treated fairly under the present parity formula.

Except for these adjustments, we believe, however, that the present parity formula should be used in administering the support price program during the Steagall support-price period. We recognize, however, that the parity formula should be modified to become effective at the end of the Steagall price-support period and we have requested that the appropriate research agencies of the Land Grant Colleges and the Department of Agriculture give serious study to this matter; and that following such studies, conferences be held among the leading farm organizations in order to develop a definite revised parity plan that will be sound, practicable, and workable in meeting the needs of agriculture during the postwar period.

Farmers believe in an economy of abundance and stand ready to join with industry and labor to achieve maximum production and maximum employment through price policies and wage policies which are geared to a maximum level of consumption. Farmers

have been producing at record high levels for several years. They would much prefer to continue to produce at high levels, but they alone cannot maintain an economy of abundance. Industry and labor must also be willing to follow similar policies.

Agriculture cannot withdraw into an economic vacuum and develop a program for agriculture based upon theoretical propositions. Due consideration must be given to the policies and practices of other economic groups as well as economic conditions generally. To be realistic, we must recognize that farmers must exchange their commodities with the products of industry and the services of industrial labor, which are highly protected by a multitude of artificial measures and devices, including tariffs, monopolistic controls, restrictive labor legislation such as the 40-hour week, restrictive immigration laws, building trade codes, feather-bedding rules, various types of slow-downs, etc.,—all of which tend to hold industrial prices and industrial wages at artificially high levels.

What industry and labor do, and the policies which they pursue, necessarily will vitally affect the future course of farm price policies, farm production policies, and other agricultural policies.

We recognize the desirability of full agricultural production, but agriculture cannot maintain full production if industry is going to maintain rigidly high prices by cutting down production and applying monopolistic controls, or if labor is going to insist upon maintaining rigidly high wage rates and to continue such increases in wages without regard to productivity and to enforce such rates with scarcity policies which discourage consumption and throw people out of work and on to relief rolls. It is this approach which leads to economic chaos. That is why, for example, we are insisting that the Fair Labor Standards Act be amended so as to provide flexibility in minimum wage rates, so that different rates may be established for different regions, based upon differences in living costs, and so that the minimum wage rate will be increased or decreased annually in direct proportion to increases or decreases in the cost of living.

Farmers have already accepted this flexibility principle in connection with price supports for agricultural commodities. The parity goal, on which all price supports are based, goes up or down automatically as the prices of things bought by farmers (which include the cost of wages) go up or down. Therefore, we insist that labor and industry should adopt this principle of flexibility in industrial wages and industrial prices.

While we still have shortages of some commodities, we must recognize also that we are entering a period when surpluses may recur from time to time which will have disastrous economic results unless we are prepared to deal effectively with the surplus problem. We favor the adoption of a practicable, workable program to expand our consumption, effective at home and abroad, but we can be reasonably certain—on the basis of past experience—that we will probably be confronted with large surpluses of some commodities, despite all efforts to bring about expanded consumption.

Whenever surpluses approach unmanageable proportions, it is imperative that farmers have the necessary machinery to control and adjust these supplies to total demands of markets, so as to prevent the wrecking of farm prices, the destruction of farm purchasing power, and the resulting unbalanced national economy. We insist that machinery for adjusting agricultural products and supplies to total market demands be retained and strengthened, including provisions for soil conservation, acreage adjustments and marketing quotas when needed, commodity loans and surplus disposal, as provided in basic agricultural legislation.

This is not a scarcity program. It is in reality an insurance program. It should be kept in mind that these provisions for acreage adjustments and marketing quotas cannot be invoked unless total supplies exceed total domestic and export requirements plus reserve supplies to protect the consuming public against scarcity. Nor can these controls be invoked to raise or hold prices above parity levels.

We also favor the continuation of crop insurance. But we urge its use only with regional adjustments and on a sound actuarial basis.

We insist that the Government's commitment to maintain the present mandatory commodity loan program for basic commodities during the two-year period following the official termination of the war emergency be fully carried out.

We further insist that the integrity of the Steagall Amendment, committing the Government to support the prices of nonbasic commodities, for which increased production was requested during the war, at not less than 90 percent of parity or a comparable price for this same two-year period be maintained. We insist that the intent of Congress requires that the support price for such commodities shall be a minimum of not less than 90 percent of parity or comparable price, adjusted for seasonal, geographic, and grade differentials, in the market place at all times during the marketing season.

We recognize, however, that in some cases the price support program will necessarily need to be contingent upon compliance with production quotas or other mechanism to prevent excessive production to the end that unnecessary governmental costs be avoided.

Future programs must be planned by the Department of Agriculture so that support commitments may be successfully administered.

In order to enable the Government to make good on its commitments to farmers in this legislation, we insist that the life of the Commodity Credit Corporation be extended and that adequate funds be made available to carry out the loan, support price, and other programs authorized by law.

We are opposed to the use of Commodity Credit Corporation funds or other public funds for consumer subsidies in lieu of fair prices in the market place. The farmer is just as much entitled to a fair price in the market place as the industrial worker is to a fair wage or industry to a fair price for industrial goods. The farmer must have a national farm program which will enable him to receive a fair price in the market place. We are opposed to plans which would propose unlimited production at ruinously low prices and force the American farmer to depend permanently upon Government subsidies.

✓ We recognize the need for reorganization of the Department of Agriculture and its various bureaus and agencies dealing with agricultural programs. We insist that in the administration of all departmental programs there be every possible curtailment of Government employes and field organizations contacting farmers, and the elimination of duplication, overlapping, and unnecessary agencies and expenditures.

It is imperative that farmers have a voice in the development and administration of such programs and that each program be efficiently and economically operated. A minimum of centralized control of agricultural programs from Washington is absolutely essential.

We believe it incumbent upon the Secretary of Agriculture to consult with the representatives of bona fide farm organizations in establishing agencies and agency responsibilities to carry out agricultural laws and programs.

Today there are several different agencies engaged in soil conservation work, with resulting duplication and overlapping. We

strongly urge a well-coordinated program of conservation of soil, water, grazing, and forest resources, designed to secure a maximum of conservation with the minimum of expense. To this end, we urge decentralization of program planning and operation of conservation programs, with authority and responsibilities placed in bona fide local, district, and State farmers' committees. The informational and educational work in connection with these programs should be decentralized and coordinated through the Agricultural Extension Service; and the necessary research work in the States should be assigned to the Agricultural Experiment Stations.

The conservation program should be placed on a grant-in-aid basis to States, wherein each State would determine what conservation practices are eligible for payment under existing laws, and no practice would be included unless approved by a State committee of farmers and representatives of the Land Grant Colleges.

In order further to improve the credit services to farmers, we urge that the various agencies of the Farm Credit Administration and the direct governmental lending agencies be coordinated and placed under the direction of a single independent national policy-making bipartisan board; that the cooperative features of the farm credit system be further expanded and that appropriate steps be taken to enable them to become fully farmer-owned and farmer-controlled.

The Federation recognizes the importance of irrigation and water development to the agricultural economy of the arid West, and that the welfare of Western agriculture demands the development of a constructive, far-seeing water policy. Looking to that end, the Federation has established a national committee to study land use, water, and conservation problems, and this committee has been instructed to make recommendations for a coordinated, long-range program to the national resolutions committee of the Federation in 1947.

We believe that new projects undertaken by the Federal Government on flood control, irrigation, reclamation, and valley authority projects should be advanced only after due consideration of necessity, and of the effect in the monetary and fiscal field, and with real consideration of the viewpoint of those in the area affected.

An effective national soils fertility program is long overdue. The American Farm Bureau Federation, as a result of much research, has developed a national soils fertility program, designed to greatly

enlarge the production, distribution, and better use of essential exhaustible plant nutrients, especially phosphate and potash in the more concentrated forms. Farmers must be able initially to increase substantially the mineral content of the land so as to establish effectively vegetative cover on the land necessary to reduce soil and water losses and to grow effectively the kinds and quantities of crops and livestock needed to improve nutritional standards of the consumer and to enable the voluntary adjustment of production in line with effective demand. To accomplish this, we recommend the encouragement of the fertilizer industry to greatly increase its plant capacity for the profitable production and distribution of both low-grade and high-grade phosphate and potash; the acquisition by farmers' organizations of adequate natural reserves of phosphate and potash; acquisition by the Tennessee Valley Authority of reasonable phosphate reserves in the Florida area to supply needed raw materials for an experimental blast furnace phosphate plant in the Mobile area, and additional reasonable reserves to protect the interests of farmers' cooperatives in the Southern, Northeastern, and East North-central regions; construction and operation of an experimental blast furnace phosphate plant in the Mobile area by the TVA for a temporary period, following which the plant would be disposed of to a private agency; appropriate steps to conserve and develop the vast resources of raw phosphate rock and potash in the inter-mountain area; and a national program of test demonstrations by practical farmers, showing the improved uses of concentrated mineral fertilizers in conjunction with liming and other improved agricultural practices.

We urge the extension of rural electrification as rapidly as possible to rural families who do not now enjoy this service.

The American Farm Bureau Federation played a leading role in the passage of the Bankhead-Flannagan-Hope Research Act, which provides for a greatly expanded research program for agriculture. We urge the President and the Congress to make available by appropriation the full amounts authorized in the Act. We believe the greatest possible proportion of these new funds should be spent in the respective states rather than being centralized in Washington, and that these new funds be administered in such manner as to avoid duplication, overlapping, and conflict of agencies.

Recognizing the need for aggressive efforts to expand domestic and foreign outlets, we favor the adoption of a positive, effective

program for regaining and maintaining our fair share of world markets, sound programs for developing new uses and new markets for agricultural commodities, an intensified educational program toward improved nutrition, a wisely planned school lunch program, and continued research to find ways and means of reducing the costs of production, marketing, and distribution.

In order to assist in financing this program, we urge the retention of Section 32 funds for use in the disposal of agricultural surpluses in domestic and foreign outlets. Since the need for surplus disposal programs varies greatly from year to year, we ask that Congress provide that Section 32 funds remain available until expended and that these funds be exempted from the provisions of the Legislative Reorganization Act of 1946, which prohibits reappropriation of unexpended balances.

In appraising the postwar agricultural situation, it must be recognized that farm production is nearly one-third above the prewar level. This means that agriculture, more than ever, needs an expanded volume of foreign trade to absorb its output. It needs it to maintain full employment. Neither agriculture nor industry can live on the domestic market and maintain a satisfactory standard of living. Furthermore, a greatly expanded trade in essential goods and services on a sound basis is a primary prerequisite to maintain world peace.

In order to export, we must import. We insist on immediate consideration of the problem of developing a constructive import program. We know that we need many products from other nations. The Office of Foreign Agricultural Relations of the U. S. Department of Agriculture, in cooperation with the Department of State, should explore the problem of how to bring in imports which will increase our standard of living without unduly disrupting the American economy.

We favor a policy to encourage trade through private enterprise. In determining our wage, agricultural, and industrial programs, consideration must be given as to how these policies fit into an expanded international trade program.

The American Farm Bureau Federation favors gradual adjustment of trade barriers, including tariffs, import quotas, currency manipulation, restrictive rulings on product specifications, and elimination of cartels and other monopolistic devices to facilitate trade.

We reiterate our support of the principles of reciprocal trade agreements. It has been long recognized that our protective policies have worked undue hardships on agricultural producers. We must face the fact that farm products constitute a shrinking percentage of our total exports and a growing percentage of our total imports. In administering the trade agreements program, equitable treatment in adjusting trade barriers must be given agricultural products.

We believe the use of international commodity agreements, coordinated under an appropriate international agency, within which agriculture has adequate representation, will be helpful in dealing with agricultural surpluses. Immediate action on this front is essential to handle surpluses which are now in prospect.

We also believe our foreign policy should encourage industrialization of other nations and that the International Bank should make loans for this purpose. If properly used, both the International Bank and the International Monetary Fund can help bring about stability of exchange rates among the nations, thus permitting the exchange of goods upon the basis of real values.

The American Farm Bureau Federation has supported, and will continue to support, the full participation of the United States in the United Nations Organization and various related international organizations such as: the Food and Agriculture Organization, the International Bank, the International Monetary Fund, and the Economic and Social Council. We also favor the establishment of an International Trade Organization to assist in bringing about the improvement of world trade.

We believe that a more stable price level is essential to the prosperity of agriculture and all other segments of the economy. While this problem is much broader than the agricultural program, as such, it vitally affects the welfare of agriculture. Farmers, probably more than any other major group, are vitally affected by a change in the general level of prices. We realize that greater stability of the general price level will not solve all our economic ills, but it is a prerequisite to developing a workable agricultural program. We likewise realize that many of the war-created inequities in the price structure will have to be corrected, and price relationships brought into a more normal balance before a program of greater stability can be made effective. However, we feel that now is the time for the nation to adopt such a program in order to avoid unreasonable price fluctuations in the future.

We believe that the control of the monetary, credit, and fiscal policies should rest in the hands of the Federal Government as is prescribed by the Constitution. Unless some success is attained in adding greater stability to the price level and the general economy, the alternative is likely to be attempts to control many individual commodity prices through more detailed types of regulation and regimentation.

The control of money, credit, and fiscal policies of the Federal Government should be coordinated under one authority, which should be an independent agency established by Congress, the members of which should be appointed by the President and confirmed by the Senate. The policies of this authority should be regulated as far as feasible, by a formula based upon some established index which would direct the authority to take action when the index reaches certain levels in order to promote a dollar of constant purchasing power. Legislation should be enacted giving the proper agency of Government responsibility for maintaining the supply of money and credit appropriate to the production needs of the Nation and a stable price level. The monetary authority should have the authority to change the gold content of the dollar within the prescribed limits of the monetary organization. Our Nation should cooperate with various international organizations to bring about international stability of prices, the orderly adjustment of exchange rates, and foreign trade.

Steps should also be taken to allow the Federal Reserve to regain control of credit. The Federal Reserve System should be provided with authority to make its open market operations more effective as a means of expanding and contracting credit. Likewise, more use should be made of additional selective credit controls. It should be the policy to prevent the contraction of money and bank credit during periods of depression and undue expansion during periods of prosperity.

We believe that the fiscal policy of the Federal Government, which includes the handling of the national debt, is an important factor in stabilizing our national economy. We believe it should be the policy to handle the national debt in such a manner as to make the maximum contribution to economic and price stability, rather than financing the debt at the minimum cost.

We believe that a sound national tax policy is essential to the welfare of our entire economy. A long-time stable Federal tax policy should be adopted with a tax rate which balances the budget under

normal business conditions. Such a program would allow for substantial payments on the national debt during periods of prosperity. Provisions should be made which will allow for prompt but temporary reduction of the lower bracket personal income tax rate within certain limits during periods of low business activity. At least a tax program should be adopted which would not increase tax rates during periods of depression, or lower them unduly during periods of prosperity. Corporation taxes should be put on a "pay-as-you-go" basis, similar to individual income taxes at the present time.

Policies for public works expenditures should also be coordinated so as to counterbalance fluctuations in private business and employment.

The American Farm Bureau Federation is opposed to any material reduction in income tax rates as long as inflationary tendencies prevail and there is a high level of employment. We believe that under present conditions, all possible revenues should be applied to a reduction in our national debt and that every effort be made to eliminate all non-essential governmental expenditures and reduce essential expenditures to the minimum necessary for good government and adequate national defense. We believe in the private enterprise system and look upon farmer cooperatives as part of that system. Cooperative earnings returned to members as patronage refunds should not be subject to tax, since such refunds are not taxed in the hands of the individual members of the cooperatives. The American Farm Bureau Federation has adopted specific recommendations for revision of Federal tax policies. Time does not permit discussion of these recommendations here.

Farm people, as well as all other citizens in the Nation, are vitally affected by the widespread industrial strife which has prevailed. The American Farm Bureau Federation has always supported the legitimate activities of organized labor aimed at advancing the welfare of employes. We will continue to support the legitimate rights of organized labor. However, the Federation, in clear and unequivocal language, insists that the rights of the general public are paramount to the rights of any one segment of our economy—whether it be agriculture, labor, or industry.

The continuation of the current trend is not only harmful to the general public, but also curtails the economic freedom and opportunities of millions of willing workers. This trend must be stopped. The welfare of all peoples demands that both labor and industry

accept their duties and responsibilities in assuring industrial peace and full production, so that this Nation of ours can properly perform its function of world cooperation and leadership.

The American Farm Bureau Federation urges that constructive legislation be enacted immediately to correct the present unbalanced and disorderly situation in the field of labor relations, and that there be developed a mature and stable national labor policy which both labor and management can respect and trust and which will effectively carry out the objective of harmonious relations between employers and employees, with resultant benefits to all segments of our economy.

With respect to farm labor, we strongly oppose the transfer of the administration of this program from the Department of Agriculture to the Department of Labor or to any other Federal agency, and we urge that the present program be continued with appropriate legislation authorizing the State Extension Service to administer this program on a decentralized basis, with authority to contract with any other agency to handle all or part of the program; or if the Extension Service does not wish to assume this responsibility in any State, the program is to be handled through any other State agency which may be created or approved by the State legislature.

We recognize that the maintenance of an efficient and economical transportation system is of vital importance to agriculture, and we will continue our efforts in securing the lowest transportation costs consistent with efficient service. We will urge the construction and maintenance of year-around farm-to-market roads, but insist that the determination of standards, specifications, and other related matters be left to the States. We recognize that railroads must operate under such reasonable regulations as will assure the public fair and reasonable rates and adequate service. We urge that consideration be given to the immediate use and expansion of intercoastal and inland waterways transportation in order to provide healthful competition to rail transportation and afford shippers of agricultural products a less expensive means of distribution. We urge that careful consideration be given to the problem of highway accident prevention and that support be given to legislation and law enforcement that will tend to reduce highway accidents.

I have summarized briefly the major postwar policies of the American Farm Bureau Federation insofar as they have been formulated up to the present time. We recognize that neither agricul-

ture, nor industry, nor labor, acting alone can solve its own problems adequately. These groups are all interdependent and their problems are closely interrelated. The welfare of each group is bound up in the welfare of all. We stand ready to cooperate with other groups in the solution of our common problems on a basis which will recognize the paramount interest of *all* the people above any selfish group interest.

GOVERNMENT AND THE ECONOMY*

RUSSELL SMITH
National Farmers Union

THE opportunity to be with you today is doubly grateful to me. Five of the most pleasant and rewarding years of my life were spent in the Bureau of Agricultural Economics, years when I learned that there is a wide gulf between the somewhat forbidding term "agricultural economics" and the very human and engaging and devoted scientists who practice that profession. I have missed that association a great deal, and this occasion of its renewal is therefore very welcome.

But more than that, the nature of this program itself is highly gratifying. My assignment in government, both in the BAE and the now buried Board of Economic Warfare, was that of evangel for the conviction that economics existed not only of and by man but also for him. I hope, therefore, that your dedication of an afternoon's program to the specific discussion of so earthy a subject as legislation will prove the forerunner of an increasing concern with applied economics.

The only other session of the Association that I have been privileged to attend was the 1938 meeting at Detroit, and I remember somewhat starkly the repercussions that followed the presentation of a paper by Howard R. Tolley, then chief of BAE, entitled "The Contribution of Agricultural Economics to the General Welfare." In preparation for this meeting I looked at that paper again, and in the light of World War II and of what has happened since, its unorthodoxy does not seem nearly so heretical now as it did then. In fact, the appearance of the farm organizations here today seems to confirm the main thesis of that paper, that is, that there is an organic relationship between theory and application in economics, and that practitioners of any social science have a social responsibility.

In some sense, then, this discussion is a footnote to that earlier paper, although I hasten to add that its author should not be taxed either with my boldness in reference to him or with anything that I say. But it has seemed useful to refer to that period as illustrative of the way circumstances are pushing the layman and the scientist

* A paper presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 28, 1946.

into a greater mutual dependence, and to show that agricultural economists are not immune to the contagion of these circumstances. In other words, whether you like it or not you are probably going to have to expose yourselves more and more to being labeled with that dreadful word "planner" as well as "scientist."

What I should like to do, therefore, is to try to call your attention to the increasing necessity for governmental action in the economic sphere and to some of the implications of that necessity for agricultural economics generally, rather than to discuss specific legislative attitudes of the National Farmers Union. In general, I can say that the Farmers Union has supported legislation or executive actions along all of the lines I shall discuss, but the generalizations are mine and not necessarily to be regarded as an organizational position.

But before the generalizations, there is one concrete suggestion I should like to make, based on one of the major accomplishments of social science in recent years. This was the adoption in the last session of Congress of the Congressional Reorganization Act, an achievement that flowed directly from the work of the Committee on Congress of the American Political Science Association. The work of that group of social scientists, not alone in the content of its studies and findings but in its approach to the problem of getting those findings enacted, can well stand as a model. I suggest that agricultural economists also may well give thought to the means whereby action can be had, to the nature of the legislative process, and to the reasons why members of Congress fail so often to accept the reasoned proposals of social scientists. The answers are not easy, and flippancy about politics or about the capacity of Congress or about the workings of democracy will not make for understanding. The intuitions of politicians, based on long acquaintance with the desires and needs of real human beings, are not to be lightly regarded even when they cannot be statistically verified. This is not to say that the words or actions of all members of Congress are desirable or worthy of study. The art of retaining office sometimes can be a pretty fraudulent sort of art. But nonetheless nearly all members of Congress who remain for any considerable length of time work within very well defined boundaries of the opinion of their constituents, opinion that affords a rough but very regular test of performance. Their success is based upon a conviction by a majority of the voters that these members have succeeded as practising economists, for most laws are economic, at bottom.

Agricultural economists are today striking out on a fruitful and hitherto neglected path. Publication by the JOURNAL OF FARM ECONOMICS during the past year of an analysis of House Appropriations Committee hearings on BAE appropriations was a similar salutary departure. What I am suggesting is that this field be regularized and formalized, that the association may well consider the possibility of seeking to establish routine contact with some members and committees of Congress. For example, the Joint Congressional Committee set up under the Employment Act of 1946 would, I am sure, welcome such a relationship.

I take it that there is not too much disagreement concerning the economic importance of government, at some point in time ahead of us, whether short or long. What should interest us, therefore, are the nature of governmental action and the implications for economists of such action. Of first importance in any such consideration is the clear and firm recognition that government must be made responsive to people, a truism that cannot be reiterated too often. If government must be active in economic affairs, then the only safe course is to make sure that government is really popular and really representative, for it then becomes too important a matter for it to be any other kind of government.

In the United States we have classically expressed our democracy in ways other than politics. In no other country, for example, can so many people perform what is the really complicated operation of driving an automobile. In no other land is it expected that the average citizen will be able not only to do this but also to change a tire, or even perhaps, tinker with the less intricate parts of an automobile's insides. Yet it is a commonplace here. In other words, American attention traditionally has been devoted to the development of an extraordinary quality of skills in an extraordinary number of citizens as on accompaniment of machine tooling, of the devices of mass production, of mechanical refinements of every sort, and to the expansion and elaboration of services and related trades. All of these, in a sense, are our kind of economic democracy, and it is these affairs that genuinely have engaged our interest. It seems to me that this different kind of practical democracy affords one principal explanation of the equally traditional American lack of concern with politics, with the fact that we record fewer votes in elections, proportionately, than any other great power, and that in between elections we tend to regard the actions of government,

whether executive or legislative, as something those fellows in Washington are doing, with a handwashing air that indicates it is no concern of ours.

The days when we can afford this attitude are numbered. Progressively, from now on it is going to be necessary for Americans to pay real attention to government. Furthermore, it is going to be necessary to find ways of making our federal system work more flexibly and satisfactorily under modern conditions. All of you are familiar with the experiments of the New Deal days in the so-called "action agencies" of the Department of Agriculture, some of which still survive. Each of the major operating agencies—the AAA, the FSA, the SCS—evolved its own type of committee or board or local system to obtain "farmer participation;" and in many ways this was the most interesting and stimulating of all the governmental experiments of the 'thirties'.

The hard lessons of those days have provided a store of precedent and experience that someday will be very useful. But when next the attempt is made to bring government into the farm or home, to make it as real as a plow, then it will become necessary to move a little farther. For what the experimenters of those days were seeking to do was to evolve a direct line from Washington into the county or community. This vitalizing of government at the roots was badly needed and is still badly needed. But if it is to persist and to become integral in our system, then account must be taken of the federal nature of that system. In other words, a genuine delineation of function as between the state and federal governments is imperative.

In decisions of the Supreme Court in recent years, the strengthening of state as well as national sovereignties has begun, a reversal of a trend that since the Civil War has weakened the states and their courts and regulatory agencies. In other words, the foundation is being laid for a strengthening of state and local units that could well restore them to that dignity and significance that marked them in the youth of the nation. Such a change will not make it possible, indeed, for the states to control great interstate monopolies, nor will it make it desirable for them to interpose barriers to trade. But it does offer the prospect that within their own and appropriate spheres, they will be far more competent and effective corporate tribunes for the people than they have ever been. Thus, the time is coming when the respective economic jurisdictions of the state and

national governments can be lined out with some accuracy, with due regard to the effectiveness of each for the performance of its assigned tasks, and above all with benefit not only to government itself but to the individual citizens for whom any type of government exists.

If these premises can be granted, then clearly agricultural economists ought to take the Mt. Weather Agreement of several years ago as a starting point and embark upon comprehensive attempts to gauge the relationship of the parts of our system to the whole, and the implications of that relationship in the economics of agriculture. So much for the first of my observations on the place of government in economic affairs. The second, in governmentese, *could be termed the "regional level."* It is unnecessary to devote a great deal of time to this phase of my comments, however, since Mr. David E. Lilienthal, new chairman of the Atomic Energy Commission, but late of TVA, has said most of it far better than I could. Again, I should like merely to append a footnote.

The success of the TVA, I believe, has been due in considerable part to the autonomy for which Mr. Lilienthal contends as a first principle to combat the threat of excessive bigness in government. His axiom, you will recall, is that centralization of authority can and must be accompanied by decentralization of administration. From such decentralization, as practised in the Tennessee Valley, will flow those virtues of flexibility and responsiveness to local needs that have characterized TVA. Yet, emphatically as I agree with Mr. Lilienthal, there are two observations that need to be made, with reference particularly to agriculture.

Again, the first of these is that the federal nature of our polity cannot be ignored, that the very orneriness and crankiness of one state as against another or of one community as against others, has an abiding value that should and need not be lost in the welter of efficiency that the future seems to offer us. In practice, of course, TVA has recognised this fact. Indeed, some of us have sometimes thought it paid too much attention to it. But the fact that decentralization of a national program in TVA—so far as agriculture is concerned—has sometimes bowed too much to state and local bureaucracies, is in itself a further argument for a clear definition of the respective spheres of government. Because regionalism has both its good and bad potentialities, then, it is time that attention was given to the ways of application of the Lilienthal formula, so that

its beneficence may be confirmed in other regions when the TVA model is put to work there.

But, more than that, the development of regionally autonomous agencies will not in itself get at the specific agricultural patterns that must be evolved if these agencies are to be fully useful instruments. In other words, TVA has no organic relationship to the formulation of national production goals, or to the breaking down of national goals into state and country goals. It does not relate its operations to attempts to set desirable conservation and nutrition patterns, as those fit into a national economy. It has only a tenuous relationship, in other words, to the great farm agencies and programs. Perhaps it should not have more to do with some of these than it now does, and certainly it is highly doubtful that future valley authorities should attempt to become miniature Departments of Agriculture for their regions. But inevitably such authorities will have a profound influence upon the shape of agriculture, and inevitably agricultural economists must concern themselves with the ideal relationship between the two and how it ought to be sought. My only point is that the sooner they begin, the better.

As a third example of the ways in which government and economics are intertwined and the need for concern on the part of economists with that intercomplication, there is the certain prospect that sooner or later government must accept responsibility for the maintenance of full employment. Let me quote here from a comment I made last month on an article in *Harper's Magazine*, at the request of the editor:

"Back of every depression is fear, fear that chokes risk capital, that causes lay-offs, that turns consumers from spending to hoarding. To end that fear it is necessary that, somehow, the conditions of full employment and full production be guaranteed. The guarantor's ability to fulfill the commitment cannot be in question, or there will be no guarantee. Private business as a whole cannot underwrite such a guarantee except through the abandonment of competition and, in effect, of the capitalist system itself.

"In other words, if such a guarantee is to be made, the government must make it. How, then, shall we escape the Leviathan state? My belief is that we can escape it by acting with sufficient boldness. In other words, if we guarantee, not a specific job for each individual, but the economic climate, then we can avoid the

necessity for detailed, man-by-man, town-by-town, business-by-business regimentation. . . .

"As against the sweeping guarantee of the conditions of full production and employment for which I contend, there is the type of intimate regulation of personal fortunes envisaged in the original Beveridge 'cradle-to-grave' social security plan. . . . The issue is what kind of intervention we are to have, and, even more important how it can be the kind of intervention that will preserve those virtues of enterprise, imagination and expansiveness that we like to call American. The choice in other words is between detailed economic controls by government, similar to those we have had during the war, and the bold creation, by a single stroke, at once powerful and limited, of conditions that will render excessive bureaucracy not only unnecessary but absurd. The former leads toward fascism, the latter toward a new economic democracy."

However unpleasant to some of us the connotations of that fact may be, I submit that we had better face up to it, for the very life or death of American ways of doing things is involved. The critical decision must be how to use government to achieve stability, and that the key to that decision lies in reducing the number of government interventions in proportion to the power of those interventions. If it is going to be necessary to rely extensively upon government in the future, let us use our best efforts to avoid the kind of all-embracing reliance that has characterized such actions elsewhere. Viewed in such a context, the importance of the acceptance of social responsibility by economists is clear, as is the importance of their concern for the shape of government.

AGRICULTURAL LEGISLATION: AN APPRAISAL OF CURRENT TRENDS AND PROBLEMS AHEAD*

NOBLE CLARK
University of Wisconsin

A REVIEW of the efforts of farmers during the past quarter century to obtain the aid of government in behalf of agriculture discloses that the many procedures undertaken have been aimed almost entirely at immediate and special advantages for certain groups of farmer producers.

In spite of the shortcomings which experience has convincingly demonstrated as regards these so-called farm programs (Mr. Goss has just called them a meaningless mess), we today are still asked to consider cotton programs, plans for export crops, basic crops, low-income farmers and other special interest groups within agriculture.

The fact remains, however, that farm welfare cannot be maintained for any sustained period of time at a level significant'y above that of our economy as a whole. If we want better economic conditions for farmers, we will first have to insure better conditions in our overall national economy. There are few obligations which it is more important that agricultural economists assume than the task of convincing rural people and the general public of this inter-relationship between agriculture and the rest of the economy.

Certainly all of us will agree that there have been, and are, specific situations when farm people have reason to believe they have been treated unfairly. To correct such conditions may sometimes require specific legislation. But in my judgment the plans for the general improvement of agriculture as an economic enterprise had best begin with efforts to correct the causes of our underlying economic problems rather than put so much emphasis and reliance on attempts to protect farmers from the ill effects of these basic problems.

Because other occupational groups may have made the mistake of taking the narrow and short-sighted approach to the fundamental issues of economic policy determination in a democracy, does not by any means imply that we in agriculture are wise to

* A paper presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 28, 1946.

imitate them. On the contrary, we will better serve farm people if we use as effectively as we can whatever influence we have to win wider acceptance for the policies which will promote the more effective functioning of the overall economy of the nation. No combination of special governmental programs for specific farm groups can possibly accomplish as much for rural people as will the acceptance by farmers and the general public of the policies which will permit the people of our nation to make the most of our marvelous natural resources and the methods which science and technology have given us.

Last week a friend of mine, who had just returned from overseas where he had been on a mission for the Department of State, told me of the widespread misery and discouragement he had observed. The after effects of the destruction of property, and the loss of life caused by the war, are simply beyond the comprehension of those of us who have not been abroad in recent months.

But much more serious, according to my friend, is the sense of frustration and despair. For hundreds of millions of human beings both in Europe and in Asia, the struggle is not for a better living, but for mere existence. Such persons cannot be expected to have much loyalty to abstract philosophies or democratic principles. They are desperate people, and offer a constant invitation to demagogues who promise them a short cut to an improved level of living. With our rich natural resources, and our very much higher level of living, we Americans are envied by nearly the whole world. It is a vulnerable position for us to be in.

My friend went on to say that he had little confidence in our ability to protect our American way of life by using merely military methods. Warships, airplanes, guided rockets, even the atomic bomb, will not give us security for long. The United Nations Organization offers a better approach, and deserves our wholehearted support. We can hope that it may grow into a powerful and effective bulwark of peace throughout the world.

In the judgment of my friend, the strongest defense which the United States has today is in the better education of our citizens, in the greatest possible development of research, and in the continuous expansion of our economic productivity as an industrialized nation. Our lack of numbers can be offset by the high level of understanding and skill of our individual citizens, and the maximum utilization of science and technology in turning out the great-

est possible production of goods and services. I am convinced this analysis of the situation is sound, and that to ignore the recommendations of my friend will jeopardize the future of the United States as a free nation.

With this audience I do not need to document the statement that education makes a people competent and makes them economically strong. Not only do Americans need more education to enable them to be more efficient—they need more education to increase their understanding of their fellow Americans and of other peoples throughout the world. The man who knows only his local community, or who thinks only of the immediate advantage of those engaged in his occupation, is hopelessly narrow and incompetent when faced with problems or programs which involve the welfare of the nation or the world. The things we do on our own farm or in our own community or state, are still important; but in 1947, and in the years ahead, the crucial policies and activities are those we attempt together as citizens of our nation.

Education has still another benefit to offer. Education breeds understanding between nations as well as between individuals. The better our understanding of other countries, the more likely we are to avoid the things which are really unessential to us, but which may loom large in the minds or emotions of citizens of other lands.

What I really want to emphasize is the urgent need for Americans to practice as well as preach the philosophy of greater and greater utilization of research and technology in the production of the goods and services which in peacetime supply the basis of our American level of living, and in wartime enable us to throw more destruction at the enemy than he can throw at us. Continuous, high level production is the prime essential for improving the welfare in peacetime of the nation's 140 million citizens, and it is an absolute necessity if we are to enable the United States, and the democratic form of government, to survive the hazardous years which lie ahead.

Millions of Americans are still ill-fed, ill-clothed and ill-housed, even though the United States is today enjoying a higher level of employment and prosperity than at any time in history. Thousands of children are deprived of schooling because of the lack of school buildings and school teachers. We need to double the number of hospital beds to take care of present needs. Malnutrition handicaps

most of the low income groups of our population. It is a sad commentary on the intelligence of Americans, when so many of our people—both urban and rural—must spend their lives in squalor, privation and ill-health, when science and technology have shown how the levels of living of all our 140 million people can be raised to heights at least as high as those now enjoyed by you and me. But to attain this economy of abundance will require enthusiastic support by all groups of our citizens in a program of securing the maximum possible output of the goods and services our people must have if we are to obtain freedom from want for all of our people.

It is most disturbing, therefore, to witness so many examples where Americans are deliberately seeking to nullify the benefits of research and invention, and to reduce the output of workers in industry and in agriculture. Their motives are to increase the immediate income or comfort, or individual security, of persons engaged in a particular enterprise. They do not seek to impair the public welfare, or to lessen the ability of the nation to defend itself; but the end results are exactly these, regardless of the intentions.

The craving for personal economic security is widespread today. People want protection from forces which might make their present employment less profitable. Such desires are understandable, but if we get security at the price of "freezing" present patterns of employment, present levels of production, or any other procedure which introduces rigidities into our economy—we handicap and jeopardize the entire program of using science and technology to give our people an economy of abundance.

Looking backwards a quarter of a century we can sympathize with the situation faced by harness makers, and those who manufactured buggies and buggywhips, when tractors, trucks and automobiles began to replace horses and mules. But does anyone believe our government would have been wise if it had enacted legislation to maintain the unneeded workers in these occupations? Would such a program have been really helpful to the workers involved, let alone a good use of taxpayers' money? Yet in all honesty should we not admit that many of our governmental programs to "aid" agriculture have attempted a sort of "stabilization" of current crop and livestock production, even though far-reaching economic forces have called for substantial readjustments in agricultural production patterns?

Usually we can see these things more clearly in other occupations than in our own. Most farmers resent, and are ready to oppose, efforts by labor unions to compel employers to hire more workers than are actually needed for a job. "Feather-bedding" is a practice which most of us find hard to justify. Why should the railroads be forced to pay wages to more train crews than are essential for the operation of the trains? Who will defend the efforts of Mr. Petrillo to require employment of musicians who do not produce music, but only stand by? Farmers' tempers rise to fever heights when the truck drivers union compels a farmer, when he brings his produce into a city market, to pay a truck driver to ride on the seat alongside of him.

All of us as consumers feel victimized when we are told of managers of industry who keep certain factory units in idleness because to operate them will increase the supply to where profit margins will be reduced. Widely accepted is the principle that it is in the public interest for management and capital to secure increased returns by increased production, with the profit margin per unit decreased, but the number of units increased to where total profits are actually enhanced. Americans instinctively believe that efficiency is in the public interest.

It is paradoxical, therefore, to witness efforts by farmers to enlist the government as a partner in programs designed specifically to reduce production. Yet this is exactly what has been the central purpose of much federal agricultural legislation during the past two decades. From the attempts of the Federal Farm Board under President Hoover to secure voluntary reductions in crop plantings, down to the resolutions passed this month of December, 1946, by some of our leading farm organizations, there has been constant support by many farmers of government programs to enhance the price of specific agricultural commodities. Inevitably this means lessened consumption.

Farmers have vigorously opposed governmental subsidies to keep prices of agricultural products low to consumers. But they have certainly not been equally critical of the use of governmental funds to keep prices up for farmer producers. All of us: laborers, industrialists and farmers; as well as others; have followed a short-sighted policy which seeks individual or group advantages at the expense of the general welfare, and in the long run is contrary to our own best interests as well.

If we are realistic, we will recognize that the production restriction and price support programs have not been entirely satisfactory to the farmers these programs were intended to aid. As economic theory would imply, the benefits of price support programs tend to be prompt and easily recognized. The farmers currently engaged in producing the crop secure larger immediate incomes. But the next generation of farmers may not be benefited at all, as for example the new farmer who does not have a tobacco allotment. The disadvantages are slower in appearing. Too often farmers are not aware of them when they do develop, and they sometimes assume the undesirable results were brought about by other causes.

High prices, however, are almost always followed by reduced sales. Loss of part of a market is certainly not to the advantage of farmer producers. High prices likewise encourage foreign competitors to take away a part or all of our export business. High prices also stimulate the use of substitutes, such as rayon in the replacement of high priced cotton.

More important, perhaps, is the fact that high prices encourage farmers to increase production in lines already out of balance; and instead of a price support program helping to get supply and demand in better relationship, it usually actually aggravates the problem the program was designed to alleviate.

Even today, when food products are in stronger demand and higher in price than at any time in the nation's history, it is my understanding the government will take a loss of \$80 million on the 1946 price maintenance program for potatoes. Just last week I heard a leading official of the U. S. Department of Agriculture say the Department anticipated a cost of \$200 million in 1947 for the price support program for eggs. After all, someone must be found to eat the products which are forthcoming at the supported prices, or else the taxpayers are compelled to pay the costs when they are destroyed or used in some uneconomic manner. It is quite a little to expect that consumers will acquiesce in the use of large sums for this purpose over any long period of time. Droughts and wars cannot be counted upon to use up the excess supplies every time.

We have here in the United States marvelous natural resources, highly developed industrial facilities, and an agricultural plant which has amazed the world. We can have, if we want it, and will work for it, a level of living and well being far beyond anything we ever had heretofore. But in the past 18 months we have spent a

dangerously high portion of our national energies in economic and political warfare between occupational groups fighting for selfish advantage. Meanwhile, all of us pay the price in the form of curtailed production, inflated prices, and bad blood between the great occupational groups of our population.

I think you will agree that democracy as a form of government is on trial today as it never was before in all its history. Democracy, if it is to have the confidence of the people, must do something more than be an accomplice, or even an acquiescent victim, to groups of citizens who seek economic advantage at the expense of the rest of the nation's citizens. Certainly the rank and file of voters, who know that science and technology have made attainable an economy of abundance, will not support a system which restricts production, raises unit prices, and in other ways denies consumers of the benefits which research and our rich natural resources make easily possible.

All of us recognize the insecurity which has been associated with the farming business. We can sympathize with efforts by farm people to reduce the hazards and the uncertainties of crop and livestock production. None of us believes that federal agricultural legislation to restrict the output, or to jack up prices, of agricultural products was designed to injure American consumers, or to impair the economic vigor of our nations. Mr. Ogg has just told you the American Farm Bureau Federation endorses the concept that the public interest should take precedence over the special interests of economic groups. Other occupational groups have been using production restriction programs to promote their interests. Farmers were led to believe they must do likewise in self defense. Too many folks seemed to forget that we live by production, and not by the lack of it. Certainly it is self-evident that everything we do to restrict or reduce needed production makes us poorer as a people.

But what can and should the government do to give farmers greater economic security? Certainly everyone wants rural people to have protection from the kind of economic disaster which struck so many of them during the early thirties, and even in the twenties.

In planning for the welfare of farming in the years ahead, I want to emphasize that I am dealing only with the long run policies for agriculture, and not for the immediate emergencies. A hungry world is still finding ways to buy all that our farmers can produce, and at prices which make production profitable. The Steagall Amend-

ment gives our farmers assurance of price support for two years after the war is officially declared to be over. The question we face is what we are to ask the government to do in peacetime to give farmers economic security.

In analyzing our problem we should recognize that American agriculture is very diverse. There is no single-shot panacea which will take care of the needs in all parts of the country. As is brought out so clearly in the Tenth Report of the House Special Committee on Postwar Economic Policy and Planning (commonly known as the Colmer Committee), the 50 per cent of the farms of the nation with the lower incomes receive only 18 per cent of the total net income of agriculture. Doubling the prices of crops and livestock would still leave most of these low producing farm families with insufficient cash from their farming operations to provide what you and I deem to be an adequate level of living for Americans. Price support programs, or production restriction programs, are both wholly inadequate to meet the requirements of the one half of our farm people who really are in largest need of governmental aid. As the Colmer Committee so well said, "It cannot be too strongly emphasized that price manipulation does not solve the basic causes of low incomes in agriculture; the solution lies in having other more attractive jobs available, and in assisting people to move into them." We can hope that many of these people will remain in rural communities and provide farmers with much needed services as carpenters, masons, electricians and in similar occupations. They do not all have to move to cities.

We can improve the situation for low income farm people, especially for their children, by providing better educational facilities in rural areas. Training should be available for both farm and non-farm employment. Health programs will do much to increase the vigor and efficiency of these low income people—in addition to adding to their comfort and well-being. A nationwide nutrition program will aid them as well as the urban people who are ill-nourished.

But what should government do to give more economic security to the 50 per cent of our families on the commercial farms who receive 82 per cent of the net cash income of agriculture? These people, too, will be benefited by an expanded program of improved educational and health services in rural areas. Over and beyond these, however, is the requirement for some sort of floor under prices of farm incomes which will cushion, even if it may not completely

prevent, large and disastrous price drops of things farmers sell. Milton S. Eisenhower has likened such price floors to lifeboats on a great liner. They are always in readiness, but everyone hopes they will not have to be used, because travel in a lifeboat is so much less comfortable and efficient than aboard a liner.

If I were to pursue President Eisenhower's analogy further, I would suggest that in actual experience farmers have not been satisfied with just an ordinary lifeboat which would keep them afloat until the storm was over or they were rescued. They have urged their Congressmen to install powerful engines in the lifeboats, fit them out with comforts and conveniences to the extent that travel in a lifeboat would no longer be just for an emergency, but whenever the liner fails to make the speed the passengers would like. More than one Congressman has racked his brain trying to find a way of making price floors, designed for agricultural emergencies, effective in raising farm prices and incomes in periods of normal demand for farm products.

By contrast the Colmer Committee made the following suggestions regarding the stabilization of farm prices:

"It should be understood that the basic objectives of such support prices is to remove short-run price uncertainties and not to establish a long-run price support system for any one commodity or for agricultural prices as a whole. This program alone would not assure the farmers a stable income over the years.

"The support levels should be such that they would be below the levels that would balance the expected supply and demand of various products, and they should vary from year to year as supply and demand conditions change.

"Except in case of demoralized world market situations, support prices for export commodities should not exceed the prices expected to prevail on the world market over the production period.

"There should be no direct limitation of production.

"The committee believes that changes in the program of supporting prices on the present parity basis must be instituted as rapidly as possible. While a sound economic revision of methods of computing parity for individual products might reduce some of the present uneconomic price parity relationships, a sounder long-run solution would appear to be to develop other means that parity prices for protecting the well-being of farmers. Prices should be free to perform their important market functions so far as possible."

In summary it can be said that careful economic analysis indicates the paramount need for flexibility in our economy. There must

be no governmentally sanctioned or encouraged programs which "stabilize" current patterns of employment, production, or prices. To permit such rigidities or monopolistic practices to exist, whether sponsored by private interests or public agencies, is to nullify the benefits of science and technology, and to hold back our people as they climb up the road which leads to an economy of abundance.

The democratic form of government is inherently vulnerable to pressure group tactics by citizens who are organized. We face the necessity of finding effective methods of convincing our people that letting each group have its way does not add up to an effective program for all, and that instead such tactics jeopardize the future of our democratic form of government.

It seems to me the basic test of any democracy is the ability of the general public to accept and to carry out uncomfortable policies which are clearly in the longtime interest of the nation. We have demonstrated as a people that we can do exactly this in wartime; the question now is whether labor, industry, agriculture and others are willing to follow such a policy in peacetime.

Dictator Salazar, of Portugal, was recently quoted as saying the English type of democracy was ill adapted to Portugal, because Latin people will not impose restraints on themselves. I surmise that we in the United States, in the years immediately ahead, will be put to the uncomfortable test which Salazar says makes democracy impractical for Latins.

There are those who have already been asking if democracy, which was so well suited to the more simple economic conditions of the United States during the 19th century, may be able to meet equally well the extraordinarily complex problems our people face today. It will not be an easy test, and my greatest hope is that American farmers will be in the forefront of those who by precept and by example will prove that Americans will make democracy succeed as gloriously in peacetime as they did in wartime.

It is within our grasp to create in this country what mankind has dreamed of since the beginning of civilization—an economy of abundance for all. The willingness of occupational groups to work together to bring about this objective also represents our most effective defense against any dangers which might threaten our nation from abroad.

A THEORY OF COOPERATION*

FRANK ROBOTKA
Iowa State College

THE topic assigned was entitled "*The Theory of Cooperation.*" Because other attempts have been made to formulate theories of cooperation, this attempt must be regarded as *a* theory. It is limited to the formulation of a theoretical explanation of the economic nature of the cooperative form of business organization, but others have dealt with the problem even from this restricted viewpoint. The outline here presented is necessarily brief and, therefore, sketchy. It is in the nature of a summary of some of the basic essentials as they are being developed in a manuscript for a book on the subject which is in the process of preparation in collaboration with Dr. E. G. Nourse, until recently of the Brookings Institution.

I. The Evolving Concept of Cooperative Association

In order to establish a point of departure for this discussion it is desirable to trace in bold brush strokes the evolutionary course that cooperative activity and thinking has taken and to outline the limits to which cooperative ideas have developed.

Robert Owen's basic idea that through cooperation people may provide for their own needs is as valid today as it was then, but his ideas as to the extent to which they may do so and as to the means to that end differ considerably from those held today.

The major essential differences between his views and those of present day cooperators are:

1. Whereas he advocated self-sufficient communal colonies which would provide all the goods and services needed and which would eventually transform society, cooperative activity has long since restricted its objectives to meeting particular needs through specialized business units functioning within the framework of the existing exchange economy.

2. Whereas his scheme contemplated a community of interest in property and common sharing of benefits, practical cooperators have built upon a recognition of individual private property in-

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terests and of participation in benefits in proportion to participation in the activities of the organization.

3. Whereas Owen's scheme contemplated relying upon public spirited citizens and philanthropists for capital, cooperators recognize the necessity of cooperators themselves assuming responsibility for providing the capital necessary, at least for the basic financial structure, and, in fact, for all of the usual entrepreneurial responsibilities.

4. Finally, whereas Owen's scheme contemplated essentially a benevolent administration of the enterprise "from the top down", cooperators insisted upon developing the latent capacity of people to administer their own enterprises on a democratic basis.

Most of the considerations which have come to be recognized as essential for the successful conduct of cooperative enterprises were at least partially recognized even prior to Owen, and certainly prior to Rochdale, but the manner in which they were finally worked out and combined at Rochdale, provided the pattern for a growth so widespread and permanent that it is generally regarded as the turning point in the history of cooperative developments, at least as applied to the field of consumer purchasing. This pattern undoubtedly represents so practical an adaptation to certain widespread circumstances that no essential changes have been made in it since that time in its application to certain areas of cooperative activity.

This pattern, however, has not proved to be the best adaptation to other circumstances, particularly to those in the fields of agriculture, credit, finance, insurance, utilities, irrigation, and others. The development of distinctive types of cooperation organization in these other fields was as spontaneous and indigenous to other parts of the world as Rochdale cooperation was to consumer cooperation in Great Britain. In particular, the so-called nonstock-nonprofit type of organization evolved by farmers represents not only a spontaneous development but one that is indigenous to agricultural areas of the world, particularly Switzerland, Denmark and the United States. It is, moreover, regarded by many students of cooperation as representing a significant advance in the evolution of cooperative ideas comparable to that of Rochdale cooperation, that is, as the second milepost, if not the final stage in the emergence of a concept of pure cooperation.

The foregoing developments, however, represent developments

in the evolution of cooperative activity in practice. What can we say with respect to progress in the theoretical economic interpretation of these practical developments?

Voluminous as the literature on cooperation is, by far most of it deals with the subject from socio-reformistic, ethical, sociological, historical, descriptive or promotional viewpoints, rather than from the viewpoint of its strictly economic aspects. However, as early as 1831, Phillip Buchez indulged in some philosophical speculations in the latter direction. About three-quarters of a century later other European students addressed themselves to the subject suggestively from the point of view of economic interpretations. Among the more significant contributions may be mentioned those of Póntaleoni, Rabbeno, Valenti, Mariani, Baranovsky, Liefman, and Fuchs.

Valenti and Mariani in particular suggested ideas which are reflected in present day thinking. For example, Valenti accepted the "hedonistic nature of the economic behavior of cooperators" and pointed out that "cooperation is an organic part of the existing system of exchange economy" and that cooperatives are one of several "natural correctives to overcome the deficiencies of distribution." Mariani, a follower of Valenti, appears to have penetrated deeper than any of the others up to that time when he pointed out that "... the members of a cooperative credit association concentrate [integrate]¹ the functions of the organizers and of the patrons [users] of credit; in marketing associations the functions of manufacturing are fused [integrated] sometimes with the functions of producers of raw materials and of middlemen; consumers cooperatives, with complete potential restoration [integration] of production for [with] consumption in some lines of activity at least can bring in the most radical changes of this kind. . . ."²

Liefman's definition to the effect that cooperatives are arrangements for the establishment of common facilities through which the participants as producers or as consumers seek "to complete [their] acquisitive or consuming activities," suggests that a cooperative is an arrangement by means of which autonomous economic units may jointly carry on activities common to their individual economic pursuits. He also suggests that a cooperative is not a "firm", but is a special form of business unit which is to be distinguished

¹ Brackets are the author's.

² Ivan V. Emelianoff, *Economic Theory of Cooperation*, p. 22.

from ordinary business units. He points out that "since a cooperative is inherently furthering or completing the economic activities of its members, all the members of cooperative associations necessarily participate in the economic work of the association."³

Fuchs' analysis leads him to challenge some of the traditional cooperative ideas, particularly the so-called "open membership" idea, with reference to which, in workmen's cooperatives, he says that considerations of efficiency dictate that membership shall be limited to such numbers as will provide "an optimum volume of employment."

American literature on cooperation is also voluminous, but again, most of it deals with the subject primarily from historical and descriptive viewpoints, with major emphasis on methods of organization and operation. Most of this literature merely reflects the ideas as they were molded by practical experience. As agricultural economics emerged as a specialized field of applied economics in response to the pioneering work of H. C. Taylor, T. N. Carver, and J. L. Coulter, and as agricultural extension developed, agricultural economists addressed themselves to the problems of the then developing cooperatives in agriculture and found themselves called upon more and more to lend their assistance to cooperatives in connection with the many problems incident to the rapid extension of cooperative activity progressively from one commodity field to another and from local to central markets. Although most economists who have become identified with the economic problems of agriculture have contributed to the literature on agricultural cooperation, few of them have attempted to deal with the subject from an analytical or interpretive point of view designed to contribute to a clearer understanding of the essential economic nature of the cooperative form of business organization. Conspicuous among the latter are Dr. E. G. Nourse and Dr. J. D. Black. Thus, although there have been many writers, few have undertaken to advance the thinking beyond traditional ideas.

Most American economists who have written on the subject would probably accept the following general ideas about cooperation:

1. Cooperative is a form of business organization—an economic entity. It is an association whose members are its patrons. It is organized by them and is essentially owned and controlled by them

³ *Ibid.*, p. 26.

and operated for their benefit as patrons. This is in general contrast to business units operated for the benefit of either capitalists or wage earners.

2. Regarding organizational and operational techniques, devices and business practices, there is substantial acceptance of the so-called Rochdale "principles" relating to democratic control, limiting returns to capital, trading "at market prices," participation in earnings on a patronage basis, prohibition of proxy voting, restricting control to active patron members, low membership fees, neutrality in politics and religion, and so on.

The following additional ideas, however, represent a more advanced stage in the evolution of cooperative thinking:

3. As to economic structure, Dr. J. D. Black says, in effect, that a cooperative is a horizontal combination of coordinate units, which may serve many purposes of such units. However, when vertical integration is contemplated, either forward toward consumers or backward toward sources of supply, horizontal combinations are essential among units which are too small to undertake vertical integration individually.⁴

Nourse, of course, also recognizes that cooperation, as a means of effecting large-scale organization, represents a process of vertical or horizontal integration.⁵ These terms appear only once in the entire book. And although the terms are not used at all in his article "The Revolution in Farming," *Yale Review*, Oct. 1918, the idea of integration is implicit throughout the article.

4. Regarding the economic relationship established among the members of a cooperative, Black says that cooperation is the antithesis of competition; that is, that the members cooperate rather than compete as among themselves.⁶

5. Recognition of the implications of the nonstock—nonprofit type of organization involves departures from Rochdale principles in several essential respects. Nourse is undoubtedly the outstanding interpreter of cooperation exemplified by this type of organization. He raises the question as to "whether we are to regard cooperation merely as a somewhat different way of conducting the affairs of the corporation . . . or whether certain distinctive standards shall be set up to embody certain specific doctrines of cooperation as a dis-

⁴ J. D. Black, *Production Economics*, Henry Holt, New York, 1926, p. 891.

⁵ E. G. Nourse, *Legal Status of Agricultural Cooperation*, The Macmillan Company, New York, 1927, p. 119.

⁶ Black, *op. cit.*, p. 866.

inct method of conducting business . . . ,” as contrasted with a company which represents “a modified form of the ordinary profit-seeking corporation, employing a particular scheme of profit sharing.”⁷

His analysis stresses the following basic considerations:

6. Membership in a cooperative rests upon a personal basis, rather than upon an impersonal financial basis. People will voluntarily coalesce on the basis of their community of interest, personal qualifications, and ability and willingness to assume the obligations implicit in mutual undertakings, particularly with respect to patronage, risks and costs. This is in contrast to concentrating a volume of patronage by competitive (“speculative”) trading on the basis of current market prices, in which case capital contributors, as such, must bear the risks.

7. A cooperative thus conceived is a means by which participants may more efficiently perform certain functions, processes or activities which are integrally related to the economic activities of the participants. Such a cooperative is not an economic unit which “pursues its own independent economic career.”

8. Membership in a true cooperative is not identified with capital contribution but with participation in the activities of the organization; the capital of such a cooperative is completely divested of its traditional entrepreneurial connotations and is placed on a loan basis.

9. Since a true cooperative is an association of human beings who agree to assume mutual obligations in order to gain mutual advantages in connection with the performance of certain functions common to their economic pursuits, nonmembers are not a part of such an organization. Therefore, it is inconsistent for a cooperative to deal with them. To do so almost inevitably results in the emergence of elements of profits or losses which destroys the distinctive character of a true cooperative.

Nourse’s analysis as presented in his “Economic Philosophy of Cooperation,” *American Economic Review*, 12: 577-97, and particularly in his “Legal Status of Agricultural Cooperation, 1927,” undoubtedly marks the limits to which philosophical speculations regarding the cooperative as a distinctive type of business organization have advanced. Although he has since made numerous contributions on cooperation, these have dealt primarily with cooperation in particular spheres of action rather than with attempts to further

⁷ E. G. Nourse, *Legal Status of Agricultural Cooperation*, pp. 49 and 52.

refine the concept of the cooperative organization as such. Moreover, cooperators themselves, although they have continued to apply the cooperative idea to ever expanding spheres of activity, have added nothing to the nonstock concept of cooperative organization. The Sapiro and Farm Board episodes of the 20's and early 30's, rather than contributing to refinements in the concept, represent aberrations and retrogressions in this respect. And the subsequent Federal action programs, some of which, like the AAA production control and marketing schemes, have been described as being cooperative because they involved the collaboration of farmers, their cooperatives as well as other trade groups in some cases, are more accurately described as socialization or partial socialization rather than cooperation in the sense in which the term is here applied to the distinctive type of private enterprise business organization.

These latter developments tend to emphasize some of the limitations of the cooperative type of business organization in dealing with the comprehensive forces the interactions of which make up the general economic environment in which all types of private enterprise business units operate.

At the first session of the American Institute of Cooperation, Mr. Richard Pattee, one of America's most penetrating lay cooperative thinkers, raised a question as to "just what we have got to do to be entitled to be considered cooperative . . .," and whether ". . . thought along this line has gone far enough to enable us to set up a definition that is fixed and standard and can be applied with exactness. . . ." ⁸ The proceedings of this session do not indicate that he received a satisfactory answer, at that time. There is nothing to indicate that Nourse's "Legal Status . . ." was written in response to Pattee's challenge or whether Pattee found therein an answer to his question.

It appears that economists have been content to accept the stage to which cooperative ideas had evolved by 1927 as entirely adequate and satisfactory, if not final. At least they have given voice to no protests, criticisms or further elucidations.

Seventeen years after Pattee raised his question, Emelianoff in his "Economic Theory of Cooperation" addressed himself specifically to this question. Unique and suggestive as his analysis is, he appears to have overshot the mark in a number of essential respects.

An adequate theory of the cooperative type of business organiza-

⁸ American Cooperation, Vol 1, p. 165, Washington, D. C., 1925.

tion must explain and rationalize in acceptable economic terms all of the considerations with respect to which this type of organization claims distinctiveness. For example: If the capital of a cooperative is, in fact, loan capital, how is the transformation from traditional entrepreneurial capital brought about? What disposition is made of the traditional functions associated with entrepreneurial capital, such as decision-making and risk-bearing? If a cooperative is in fact profitless, a logical corollary is that it must also be riskless, hence what happens with respect to risks must be explained. If patronage refunds and returns paid on capital do not constitute distributions of earnings, what is it that is thus distributed? What are the implications of the usual assertion that true cooperatives operate at cost? Since agents derive income from rendering services for their principals, how can this fact be reconciled with the usual allegation that a cooperative is a nonprofit organization? How may the traditional "one-man, one-vote" method of control be explained?

The problem will be approached by examining what happens when a cooperative association is formed.

II. What Happens When a Cooperative is Formed?

Attempts to explain what a cooperative is frequently proceed by comparing or contrasting the cooperative with the ordinary corporation. The writer believes that it is more natural and, consequently more illuminating to approach the subject from the point of view of the behavior of participants in a cooperative undertaking, because, in the final analysis, cooperation consists of a mode of action on the part of the participants. They act either competitively or cooperatively. The logical approach therefore, seems to be to examine the nature of the economic relationships which are established among the participants when they choose to function cooperatively.

The analysis could proceed by making an examination of what happens in the simple case of two livestock producers who negotiate, in an isolated instance, to make a joint shipment of livestock to a central market. Would their action in this case result in the *organization* of a cooperative association, or would it merely consist of a *transaction*? Some collaborative arrangements no doubt are merely transactions. It would seem that something more permanent and substantial must take place before it can be said that a cooperative association has resulted.

Since the essential nature of the relationships established would be the same whether the number of participants was 2, 200 or 2000, it will be assumed that the two producers had decided to ship co-operatively under agreed arrangements as a more or less permanent policy.

The first essential, of course, is that the participants agree to ship jointly. Such an agreement involves an entrepreneurial decision on the part of each participant. It is a decision that only sovereign entrepreneurial units can make. If they continue to ship jointly, it simply means that the agreement is a continuing one, or is renewed from time to time.

Several significant things which must be emphasized have happened as a result of this simple initial step.

1. A horizontal combination of the participating units had been effected.

2. The combination was effected by the voluntary mutual agreement of sovereign economic units.

3. The agreement involves only the livestock shipping activities of the participants, who retain complete autonomy with respect to all of their other activities.

4. The combination is, therefore, not accomplished by a merger or consolidation, as a result of which participating units would lose their individual identities, but by a *federation* of sovereign units.

5. The agreement relates to activities which participants as livestock producers had previously performed individually; that is, the marketing of their livestock.

6. Through the agreement, participants have added the performance of functions which they had not previously performed—i.e., the assembling of livestock into economical shipping units. Thus, they have integrated with their other productive and marketing activities the functions of the livestock assembling and shipping firm.

Thus, this simple step illustrates a case of horizontal and vertical integration, but it is a case of *concerted* integration—integration accomplished not by merger or consolidation but jointly by a group of federated units which retain their individual identities. And the purpose of their action is to coordinate particular activities integrally related to their individual economic pursuits.

All of the considerations with respect to which cooperatives claim distinctiveness must be consistent with and are explainable in terms

of this basic concept of the cooperative as a type of business organization. Some of the more important of these considerations will be examined in the remainder of this paper

Has a New Economic Entity Emerged? That a cooperative organization is a business enterprise—a “firm”—is almost universally accepted without question or verification. Emelianoff's analysis, however, leads him to the conclusion that a cooperative is not a firm in the usual technical sense, but that it consists of a loose bond (perhaps in the nature of a treaty among sovereign units) only strong enough to accomplish the degree of coordination of activities desired by the participants, and yet so weak that it does not impair the sovereignty of participating units. This phase of the problem cannot be dealt with adequately in a brief discussion. Although a cooperative does not appear to meet all the specifications of a firm, it cannot be denied that it is an economic entity. Even in the case of the two farmers shipping stock cooperatively, a new decision-making body is created. The essence of the agreement they had entered into involves a commitment on the part of each of them to submit certain questions regarding his shipping activity to group decisions. Each participant must surrender sovereignty to this extent; hence each participant's status as an individual maker of decisions in this particular respect is modified. Others now participate with him in this process. Those who thus participate in making these decisions, therefore, constitute a new decision-making unit.

It must, however, be recognized that this decision-making unit cannot make decisions which are unrelated or inimical to the interests of participants *as livestock producers*. This decision-making body consists of the participants, but as members of this body they continue to function in their capacity as livestock producers. Their joint decisions with respect to the shipping activity will, therefore, be integrated with their decisions as individual livestock producers.

A New Risk-Bearing Body Emerges. Since the decisions of the participants regarding their shipping activity are now group decisions, and since those who make decisions must assume responsibility for their consequences, a new decision-making body cannot emerge without the simultaneous emergence of a corresponding risk-bearing body.

In the first place, a new risk situation was created when the two farmers decided to ship jointly. By coordinating their shipping function, participants may increase some risks and decrease others.

For example, there is the chance that one of them may desire to ship at a time when the other is occupied in other urgent activities. On the other hand, the risk of being denied access to a favorable market at inopportune times may be reduced. Participants as a group will be affected by this particular risk situation differently than they would be as nonparticipants. Certain risks, such as losses in transit, variations in costs of shipping, and others, will now be shared by the participants jointly rather than individually. Certain risks will thus be spread among this particular group of participants.

Again, it must be recognized that the new risk-bearing body consists of the participants *as producers of livestock*; it is not one that is dissociated from participants as individual livestock-producing risk bearers.

The Cooperative as an Income Unit. Thus, although a new economic entity emerges, it is not one which, as Nourse, says "pursues its own economic career," independently of those of participants.

That it is the purpose of true cooperators not to interpose a profit-making unit between themselves and their market is amply borne out by positive assertions of purpose to that effect made by cooperators. This purpose is usually explicitly set forth in articles of association, by-laws and supplementary marketing agreements frequently entered into by members of cooperatives.

From a legal point of view, a cooperative is a non-profit organization if it obligates itself to refund to patrons any surplus over costs. However, the economic fact, to which the law thus seeks to give expression, is that when autonomous units cooperate with respect to some part of their activities, they still act in their own capacity as autonomous units and are responsible, as participants in the cooperative activity, for the results of their decision to so function. For example, the livestock producers in our illustration have merely chosen to sell in the central market at central market prices, rather than in a local or some other market. Access to the central market was rendered economically feasible for small-scale producers by coordinating their shipping activity. Cooperative shipping is only one of several alternative methods of disposal available to individual producers. Large-scale producers will already have assembled livestock into economical shipping units and may, as individual producers, integrate the usual functions of the livestock shipping firm. When they do so, the shipping function does not become an economic entity separate from that of the farm

business unit, hence does not become a separate profit-and-loss unit, nor a separate income tax-paying unit. Neither the large-scale producer who performs the shipping function himself, nor the small-scale producers who ship cooperatively, have made a sale or received a price until their stock is sold in the central market and they have received the gross proceeds. Moreover, each receives payment for the net market weight, hence assumes any loss due to shrinkage or damage in transit. He likewise assumes responsibility for transportation and central market costs, as well as for any costs incurred locally in preparing the shipment and dispatching it to market.

The cooperative shipping arrangement merely represents an extension of the entrepreneurial functioning of the participating units. It is a method by which several small units may jointly accomplish the integration of functions which larger units may accomplish individually. The proceeds from sales in the case of the cooperative do not belong to the cooperative any more than they belong to the sales or shipping *department* of the large-scale producer who shipped his own livestock. Nor does the cooperative incur expenses for which it itself is responsible, any more than does the shipping department of the large-scale producer. The producer, as such, is responsible for such costs. The cooperative is, of course, authorized by the participants to incur necessary expenses in their behalf. Hence the proceeds a cooperative receives from sales of members' products accrue to participants as liabilities of the cooperative, and expenses which it incurs in their behalf are receivables which patrons are obligated to pay. Hence the cooperative, as such, cannot realize a profit nor incur a loss.

Patronage an Obligation. Obviously, the benefits which the producers in our illustration anticipate gaining by shipping cooperatively can be realized only if each of them fulfills his part of the agreement. Neither of them could afford to go to the trouble and expense of delivering his livestock for shipment at the appointed time and place except on the assurance that the other would do likewise. In consideration of the mutual advantages to be gained each participant obligates himself to function as contemplated or to reimburse the other to the extent of any damage sustained by him in case of a default. Each has therefore placed himself under a moral obligation to function as contemplated. In more formal arrangements, such obligations are usually explicitly set forth in a

legally binding contract, with provision for the payment of stipulated damages in case of a breach thereof. Every cooperative arrangement involves an implied if not explicit obligation to utilize the facilities jointly provided as a means of carrying out the purpose of the participants.

Moreover, acceptance by the participants of the obligation to ship livestock jointly through specific facilities provided for the purpose means, in effect, that the participants have decided to abstain from shipping or selling in competition with others. Their combined offerings enter the market supply as a single unit of product rather than as several competing units. As a consequence, participants abstain from competing against each other in their search for sales or marketing facilities and are no longer free to respond individually to the solicitation of competing dealers or sales agencies. Instead of vying against each other in these matters, they act in coordination with each other.

"Service at Cost." One of the basic tenets of cooperation is that participants shall receive service at cost. The customers of an ordinary business unit may and frequently do receive service at cost, sometimes even at less than cost, or there would be no business failures. This does not mean that such businesses are functioning on a cooperative basis. Involved in the service-at-cost idea as it relates to cooperative operations is the fact that participants authorize the cooperative to incur and assess against them only the actual costs of serving them. This is only a partial explanation, however, because customers may enter into a contract to the same effect with an ordinary business, provided a business can be found which is willing to forego profits. The real reason why cooperative activities are said to be conducted at cost is because they are a part of the integrated activities of the participants. When a farmer does his plowing himself, he receives service for what it costs him to render it. If he hired it done, he would normally have to pay not only the expenses of the plowman but something extra to induce him to assume the risks and for planning, organizing and supervising the operation. When cooperators jointly conduct an integrated activity, they themselves incur the expenses of conducting it, and in addition assume the risks and the responsibility for planning, organizing and supervising the operation. They thus "earn" or "save" what they would otherwise have to pay someone else for performing these latter functions.

Patronage Dividends. The patronage dividend is another feature characteristic of cooperative operations under certain conditions. Occasion to use this device has thus far not arisen in our cooperative shipping illustration. As is generally recognized by students of cooperation, operations which are conducted on a "net returns" or "agency" basis normally result in no balance to be distributed in the form of patronage dividends, as the net balance is distributed among patrons at the end of each pool period. In 1936, 56 percent of the agricultural marketing cooperatives in the United States (85 percent if grain marketing cooperatives are excluded) operated on a pooling, commission or other type of agency basis, as distinguished from the so-called purchase-and-sale basis.

Students of cooperation would probably agree that the so-called patronage dividend is not a true dividend in the sense that it represents a distribution of profits. However, where the patronage dividend is used, as it frequently is, as a profit-sharing device (as a competitive device to attract patronage) it becomes a method of distributing profits. Ordinary corporations may distribute some of their profits to their customers in this manner. Where business operations are conducted on a competitive price basis, and where it is not contemplated that patrons, as such, shall assume responsibility for costs and risks, then it is a fortuitous matter as to whether the operations result in a profit or a loss. If under such conditions a loss results, stockholders must bear it. Such a business cannot attract capital unless investors are offered inducements in the form of profits. It is, of course, for them to decide whether or not they wish to share their profits with the customers of the business. If they decide to do so, the refund consists of a share of the profits distributed as a gratuity to customers.

Although the operations of many so-called cooperatives resemble those of a profit-sharing corporation more than those of a true cooperative, the patronage dividend as used by true cooperatives functions in quite a different manner. It is only when it is used as a truly cooperative device that the patronage dividend is not a true dividend. No true cooperative deals with its patrons on a competitive price basis. Technically a price is a consideration involved in the transfer of title. The risks of ownership pass with the title. When a customer pays or receives a price, his interest in the transaction or its consequence in terms of profit or loss ceases. However, when a cooperative patron's interest in the transaction con-

tinues in the sense that the transaction is not consummated until it is adjusted to a cost basis, then the settlement at the time of the transaction is not a *price* settlement but a tentative or "provisional" settlement subject to adjustment after a final accounting. The patronage refund under such circumstances is a device designed to adjust the transaction to a cost basis. In such case, there would be no profit to distribute in the form of a true dividend.

True patronage dividends might arise in the case of our shipping illustration under either of two circumstances.

First: If it is assumed that each of the participants advanced a lump sum to cover the costs of preparing the shipment for market such an advance, if it is to serve its purpose, would necessarily have to be somewhat more than it is estimated the actual expenses are likely to be. After the actual costs are ascertained, the excess would accrue to the participants as an overcharge for services and would be refunded as a patronage dividend.

Second: If it is assumed that the cooperating shippers preferred to receive advances of a part of the market value of the livestock at the time of its delivery for shipment (presumably by means of a loan) the advances would not represent payments at purchase prices, but advances in the nature of loans or "provisional" settlements pending arrival of sales proceeds. Since the cooperating shippers could not consistently advance themselves more than the net amount of the sales proceeds and since the amount of the latter cannot be known until they arrive, the advances must necessarily be conservative. Actual sales proceeds would thus normally exceed the advances made. The excess would accrue to participants as a liability of the cooperative and would be paid them in settlement of the underpayment made at the time the livestock was delivered.

A true patronage dividend is thus a device designed to adjust provisional settlements to a cost basis. In actual practice, adjustments in the form of patronage dividends for underpayments for products delivered as well as for overcharges for services rendered are, of course, not calculated separately but are combined in a single patronage dividend adjustment and usually at the end of the year. Any such underpayments or overcharges accrue to patrons as liabilities of the cooperative by virtue of the predetermined purpose of the participants to coordinate their activities as autonomous units on a jointly integrated basis. When the cooperative makes such adjustments, it merely discharges a liability.

The Capital of a Cooperative. It may appear that thus far the illustrative shipping case has involved no capital. This is not strictly true, for someone financed the livestock and the shipping expenses pending receipt of the proceeds from the market. Participants, of course, provided this capital by advancing funds for shipping expenses and by waiting for the proceeds to arrive. However, since each of the participants financed his livestock and shipping expenses individually and directly, no unit of *funded* capital has, as yet, emerged.

If it is now assumed that the number of participants is increased to the point where it becomes feasible to provide a continuous shipping service, it will be found desirable to maintain a small inventory of feed, bedding, and other supplies. Participants will now have to provide capital to finance the inventory of supplies. In order to achieve effective management of such a fund of capital in the interest of the whole group, it will obviously be necessary for participants to surrender individual control over their respective contributions to it and to be willing to submit questions regarding its use to group decisions. A unit of funded capital would emerge at this point. It would be administered by a decision-making and risk-bearing body consisting of the participants. Although normally members delegate broad general authority to a board of trustees, and they, in turn, to hired managers and employees, members assume responsibility for all decisions and will retain veto power, which at the extremity may be exercised by withdrawal from the cooperative.

This unit of capital, however, is not a unit of entrepreneurial capital in the usual sense. Each participant, instead of advancing only enough to finance the expenses of a current shipment, as in our original illustration, will now make an advance designed to finance the expenses of future shipments. The advance is thus in the nature of a deposit against which the expenses of future shipments will be charged. Any unabsorbed balance of a patron's advance will accrue to him as a liability of the cooperative. In order to maintain a continuing inventory of supplies, it will, of course, be necessary to continue to replenish the fund as supplies are drawn upon. This will be accomplished by assessing a charge for supplies actually used against each patron each time he ships livestock.

The capital fund thus created would differ from ordinary entrepreneurial capital in several respects. Participants would not be

accorded a voice in the management of the association by virtue of their advances of such capital, but by virtue of their participation in the shipping activity. They would not contribute the capital for the purpose of deriving an anticipated income from it, as such, but as a condition to receiving shipping services. They would likewise, as contributors of capital, have no claim to a share of the proceeds from the sales of livestock, nor to residual assets. Nor would they, as capital contributors, assume risks of losses occasioned by the shipping activity, because, as already indicated, participants assume such risks as participants in the shipping activity by virtue of the fact that they assume responsibility for costs (including losses) which are deductible before sales proceeds are distributed.

The same reasoning would apply if the participants should now decide to advance additional capital, for example, to build a shelter for the supplies, or pens and other facilities to care for the livestock pending loading for shipment. Such capital would likewise represent advances made by participants to cover the costs of services to be received in the future. The facilities in which such capital might be invested would constitute a "plant" owned jointly by the participants, the costs of the current use of which being included in current service charges. Such capital would likewise be a liability on the books of the cooperative, since any part of it which has not been absorbed by costs of services rendered for participants would accrue to them. Each participant, thus, in effect, allocates a part of *his* entrepreneurial capital to the association to be expended in providing him with desired services.

Where contributions of such capital are evidenced by shares of capital stock, as it still often is in practice, the holders of such stock are usually restricted as to voting rights, claims to income or assets and responsibility for risks to such an extent that it resembles capital stock in its traditional sense in name only. Because of legal, accounting and business precedents and practice, the tendency is to regard it in the light of its traditional connotations in ordinary corporations.⁹

⁹ It is recognized, of course, that theoretically pure cooperation can only be approximated in practice. Because cooperating patrons in practice seldom assume responsibility completely for all costs and risks, capital contributors, as such, must assume these residual risks. Hence, in practice the capital of most cooperatives retains in varying degrees the characteristics of entrepreneurial capital. This is particularly true in the case of the "profit-sharing" type of cooperative which deals with its patrons on the basis of competitive prices, rather than on a "net returns" basis.

Interest or "Dividends" on Capital. Since, as already indicated, the participants in a true cooperative assume responsibility for costs and risks on a patronage basis, capital as such is relieved of the usual business risks. Contributors of such capital, therefore, are not entitled to receive a return on capital in the nature of profit as a reward for assuming risks. Moreover, the capital which participants advance is not advanced in anticipation of the returns they may receive upon it, but as a necessary condition in order to make certain desired services available to them. In any case, since the operations of a true cooperative are conducted on a cost basis, there would be no residual income to distribute to capital as such. Moreover, since any return members receive on their capital contributions would either be added to the expenses of the services they receive or be deducted from proceeds from sales accruing to them, there would be no point in paying such a return. Members would merely be shifting such amounts from one pocket to the other. In practice, however, capital contributions are frequently not made in proportion to the use participants anticipate making of the services of the organization. In such cases, the payment of a return on capital is justified on the ground that it compensates for disproportionalities in capital contributions. The members who contribute capital in excess of their proportionate share, in effect, loan to those who contribute less than their proportionate share, and the return is, therefore, in the nature of interest rather than a distribution of residual income.

The Basis of Control. As already indicated, the members of a cooperative participate in control, not because they have contributed capital, but because they participate in the activities of the organization. In a farmers' marketing cooperative, for example, a member may contribute \$100 of capital but may entrust products to the association worth many times that amount. Obviously he would not be willing to do this if the organization's policies were controlled by capital contributors, as such, or others whose interests were not identical to his own. Hence, control in a cooperative is identified with patronage because it is with respect to patronage that the member normally assumes major risks. In an ordinary corporation it is consistent to identify control with capital contribution, because in that case the major risk is borne by stockholders as contributors of capital.

A question arises, however, as to how much control a member of

a cooperative should exercise. In our original shipping illustration, there were only two participants. Obviously there could be no collaboration between them if either of them dissented. Even though one of them contributed 9/10 of the patronage and was accorded 9 votes to the other's one, he would not be in a position to impose his will upon the other without the latter's consent.

The traditional idea that control in a cooperative must be on a personal (democratic) basis, rather than on a financial basis, no doubt to some extent stems from the idea that a cooperative is an association of human beings rather than an impersonal organization of capital. It should also be remembered that during the period of cooperative beginnings in England, the question of suffrage was also being agitated. It is only natural that workers, being denied representation in the affairs of government, should insist that in their own organizations there should be no discrimination among the members in the control of their affairs. It should also be remembered, however, that, at least from a property ownership viewpoint, a high degree of homogeneity existed among the cooperators of that time.

Nevertheless, for over a century equal voting has continued to meet with the *almost* universal approval of cooperators, perhaps primarily for political and psychological reasons, but also probably to some extent because of the fear that unequal voting might result in favoring interests represented by wealth rather than the interests of members as patrons. It should be clear, however, that equal voting would tend to exclude those who might feel that their interests might not thus be adequately protected. For example, large-scale producers may refuse to join an organization consisting predominantly of small-scale producers, and vice versa. Under certain circumstances which necessitate the collaboration of a heterogeneous group, unequal voting has been found to be the only basis on which the necessary amount of participation was obtainable. Voting in irrigation cooperatives is commonly on an unequal basis. Voting in some of the Pacific Northwestern cooperatives is based on acreage, fruit trees, cows milked, etc. Certain Czechoslovakian electrical cooperatives have persistently failed until voting according to patronage was introduced.

From a strictly economic point of view, voting rights would be apportioned according to risks assumed, and since in a cooperative

these are borne proportionally to patronage, voting would be based on patronage, if not strictly proportional thereto.

Conclusions

It is believed that a satisfactory basis for the rational explanation in economic terms of the distinctive features which characterize the cooperative association is provided when a cooperative arrangement is conceived as a federation of autonomous economic units whose avowed purpose it is to function in their individual capacities but in a coordinate manner with respect to specific activities integrally related and common to their individual economic pursuits. A new economic entity emerges when a cooperative association is formed because participants must agree to submit to group decisions questions relating to the activity being coordinated. The cooperative association, as such, however, is a sovereign unit only with respect to its external relationships. Internally, the participants act in their individual capacities in a mutually agreed upon manner, hence the acts of the cooperative represent the sum of the acts of the participants. Functioning cooperatively thus represents a choice on the part of participants of alternative methods of functioning; that is, it represents an extension of their entrepreneurial functioning.

It is only on the basis of such a concept that the nonprofit character of the cooperative arrangement, as such, its "service-at-cost" basis of operation, the nature of its capital, the patronage basis of members' participation in benefits, risks, costs, and control, and the other distinctive features of true cooperation are explainable in an economic sense.

When a group of units associate themselves in the manner indicated, it results in the establishment of a distinctive type of multilateral economic relationships among themselves which have to do essentially with their entrepreneurial functions of decision-making and risk-bearing with respect to the coordinated activity. Their purpose to thus function is given legal effect when participants enter into a multilateral agreement in the form of articles of association, by-laws, and often supplementary special contracts. The basic purpose of the enactment of special cooperative laws for the incorporation of such associations is to give legal recognition and a legal status to the distinctive type of economic relationships

established when a cooperative association is formed. Many cooperative laws, however, only partially recognize the economic nature of a true cooperative association. Many of them are designed to give legal recognition to intermediate stages in the evolution toward true cooperation, such as modifications of ordinary corporations designed to permit them to share profits with patrons on a patronage basis, etc.

Although it is not anticipated that pure cooperation will be realized in practice in a large majority of cases, the formulation of an economic concept of pure cooperation should serve many useful purposes, among the more important of which are:

1. To provide economic criteria for the scientific analysis and evaluation of cooperation in practice.
2. To provide a goal which cooperation in practice may strive to attain.
3. To establish a scientific basis for the teaching of cooperation as a branch of applied economics.
4. To provide criteria for the guidance of lawyers, accountants, lawmakers, public officials, the courts, and others in dealing with cooperative problems.

The ultimate effect of the foregoing results should be to exert a salutary influence upon the average level of practical cooperative performance.

THE FUTURE OF FARM COOPERATIVES IN THE UNITED STATES*

E. A. PERREGAUX
American Institute of Cooperation

FARM cooperatives in the United States have "grown-up" volume wise. They have adapted the corporate form of business organization to the objectives and needs of farm groups. Operating in the rough and tumble of business, they have demonstrated their ability to operate efficiently and grow steadily. The volume of business done by marketing and purchasing associations in the 1944-45 marketing season was over five and one-half billion dollars.¹

This business was done by more than ten thousand associations performing buying and selling services for four and a half million farmers. It did not include the many service cooperatives serving farmers; such as credit associations, artificial breeding associations, mutual irrigation companies, farmers' mutual fire insurance companies, and other service associations.

Farmers' cooperatives operated in every state in the union. The largest number of associations was in the North Central States, which area also had the largest number of members. California, while only eighth among the states in number of members, led the states in volume of business transacted for the 1944-45 season. The volume of business transacted by associations in Minnesota, Illinois, and New York followed in that order. Minnesota led in total membership, followed by Illinois, Iowa, Wisconsin, and Missouri.

Dairy products led in volume of business, by commodities, followed by "grain, dry beans, and rice"—fruits and vegetables—livestock—poultry and eggs. Total purchases of supplies for members, including that done by marketing associations, were just over a billion dollars.

While many of the cooperatives were organized prior to 1900, the big increase in numbers and particularly in volume of business has developed since World War I. The creation of the Farm Credit Administration in 1933 was an effort to develop a cooperative

* A paper presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

¹ Cooperative Research and Service Division, Farm Credit Administration.

credit system for farmers in the United States. Some of the more recent farm cooperative developments have been in artificial breeding, cold storage locker plants, poultry dressing plants, manufactured milk plants, oil refining and distribution, rural electrification, lumber, farm labor, and the manufacture of farm machinery. Another recent development has been the effort to carry farm products farther along the line toward the consumer.

When farmers first organized cooperatives, they tended to be small individual local units. As they developed, particularly in the 1920's, the trend was toward larger units and in the direction of monopolistic control. The final impetus given this trend was implemented by the Farm Board in the formation of large national organizations from the top down. Since that time the emphasis has tended to be away from monopolistic control and toward the development of cooperative organizations built from the ground up.

Is it true that as long as farm cooperatives remain small they are all right, but that they should not be allowed to grow too large? The tendency during World War II has been for all business corporations to continue to become larger and larger and economic power in business more concentrated. For example, two-thirds of all the manufacturing facilities in this country are now operated by 250 large corporations.² Farm cooperatives were organized to provide the many small farm units with the means of pooling capital and other resources to combat monopolistic tendencies in industry. Is there any reason, with the continued concentration in industry, why farm cooperatives should not be allowed like opportunities to organize large units for efficiency?

This tendency on the part of farm cooperatives to develop large units has developed in many directions. One has been vertical integration in which the association has attempted to push its services either farther back to the producer, farther forward toward the consumer, or a combination of the two. The other has been horizontal integration in which the association has developed an across-the-board or community type of service. It would seem that farm cooperatives will probably follow the pattern set by other types of business and continue to grow larger.

One factor may well be mentioned at this point. A large part of

² Senate Committee Print #6, 79th Congress, Second Session, p. 43. Economic Concentration and World War II, Report of the Smaller War Plants Corporation to the Special Committee to Study Problems of American Small Business. U. S. Senate.

the growth of farm cooperatives has occurred during the present period of rising prices. The latter part of this period has also been one of a nation at war, during which we have had an administered economy in which prices have been established by government or by pressure groups with the sanction of government. As is usually true during such an era, the course of prices departs from normal due to the inability of administrators to adjust rapidly to all the vagaries of prices.

Many cooperatives as well as other types of business have flourished under the era of regulated prices. Others have found the going harder. In some cases the margins fixed were liberal. Some of the cooperatives which operated under these margins developed excellent new or enlarged processing facilities and built a strong financial position as well. At the same time many of these associations have increased their inventories and expanded their credit position either with members or with the trade due to increased volume of business and higher prices.

Such a situation can continue favorable as long as prices are rising and demand continues good. During such a period overhead costs usually lag behind prices. However, it may not be long before a downturn in agricultural prices will occur, if it has not already started. Overhead costs will tend to continue high and margins will be much less if not non-existent. The \$40 to \$50 drop in linseed meal prices in about six months after the last war is an illustration of the rapid changes that can occur. Similar changes in price may occur in the not too distant future, not necessarily in linseed meal but in other commodities. For this reason farm cooperatives will need to watch their inventories and credits as well as expansion of fixed investments in order not to be put in an untenable position in competition with other agencies where conditions are more flexible. If such a period of declining prices does materialize, economy and efficiency will have to be stressed if losses are to be avoided. Possible reduction in volume and accumulation of surpluses may change the favorable situation that has existed to one much less favorable. When the turn comes, farm cooperatives should be in a position to reduce overhead and to operate at lower costs. Are the associations making provisions to meet these changes if, as, and when they occur? Upon their flexibility and adaptability during a period of reduced demand or declining prices will depend their ability to continue to serve their members satisfactorily.

The period of rising prices and labor shortage, for example, has resulted in a tendency for purchasing associations to perform more and more service for members—delivery, warehouse service, credit—all of which have been appreciated by the members even though prices were higher as a result. However, if prices of agricultural products decline, members will examine more closely the cost of these services. Many farm cooperatives were organized, after the last war, to eliminate these costs because the trade had been reluctant or refused to reduce both the additional services and their cost. Cooperatives should not place themselves in a position in which they cannot adjust to farmers' needs because of heavy overhead or inability to adjust methods of operation.

Labor costs will tend to remain high when prices decline and cooperatives may find it necessary to inaugurate new methods of distribution to reduce labor costs per unit. This may require the cooperative to move farm products closer to the consumer or to introduce new services for consumers at less cost. In some cases it may involve new methods of processing or packaging as well as different methods of delivery.

Reduced volume in some cases may indicate need for consolidation of existing units where marked savings can be effected in both procurement and distribution. In many commodities real savings are possible by the elimination of some of the overlapping processing plants and services. This is not so evident when volume is high and margins wide. Transfer of product can often increase volume and efficiency, thus reducing costs. This would permit either higher returns to producers or lower prices to consumers, depending on the competitive position of the commodity.

Consolidation, however, is extremely difficult, as demonstrated by the many unsuccessful efforts made during the war where savings would have been considerable. The institutional factors which are responsible for the strength of a cooperative are the very same which make consolidation so difficult. Pride in local organization, custom, loyalty, and "where the personnel of the different units consolidated will fit in the new organization" are some of the restraining influences in effectuating efficiencies through consolidation of existing organizations. However, the responsibility for the welfare of the farmers' interests rests with the Boards of Directors of the associations involved and it is their problem to work out the best answer to the question.

One of the most serious problems affecting the future of farm

cooperatives is that of democratic control. Associations with thousands of members located in several states have an entirely different problem in creating and continuing membership control and responsibility than the small association in which all the members live in the same community. A cooperative can remain cooperative in spirit as well as in fact only if the members know and accept their responsibilities. An understanding and informed membership helps formulate sound policy by participating in its formulation and by electing properly qualified directors. These directors then select the management. This process is much more difficult in the large than in the small association where each member can express his own opinion in open meeting. It is wellnigh a physical impossibility for an association with 50,000 members to hold an annual or special meeting with all members present. The one man, one vote principle of democratic control must be applied in the large organization in such a way that the member recognizes and exercises his prerogatives as an owner and user. This problem has been complicated further in many cases because the only capital contributed by the member has been through savings.

If large farm cooperatives are to continue to operate successfully as cooperatives some form of representative control must function, both to indicate to management the desires of the membership and to provide a way for management to keep the members informed and in a position to make decisions intelligently on the basis of the facts. Members in many associations are not adequately informed about the activities of their organizations. The extent and seriousness of this situation is indicated in a study reported by W. A. Anderson of Cornell University.³

"In one study of a large cooperative, a list of ten major service offered by the organization were presented to farmer-members. One-third of the members did not know that three of these major services existed at all. Of a group of member-farmers who were favorable to this organization, 80 percent knew accurately a number of facts about the organization, while of those members who were unfavorable, 65 percent did not know the same facts. When not informed, belief in rumor and the creation of unfavorable attitudes is easy.

"In a study of another large cooperative, only 21 percent of the

³ "The Need for Cooperative Education," W. A. Anderson. Presented at the American Institute of Cooperation, Purdue University, West Lafayette, Indiana, August, 1946.

male patron-members knew accurately how membership was obtained, 36 percent had misinformation, and 43 percent had no knowledge at all. Only three percent of these knew how the Board of Managers of the Central Organization was elected and only 24 percent knew how the general manager was selected.

"In an effort to get at the knowledge farmers who were cooperative members had of general cooperative principles, a list of ten "true and false" statements were presented for response. Sixty percent of the cooperative members did not even try to answer the questions. Many of these were officers and committeemen in their local associations. These are just a few illustrations of the lack of knowledge by male members of cooperatives.

"We also have made studies of farm women, and the facts both as to participation, knowledge, and attitudes culminate in one basic conclusion; farm women whose families use cooperatives have very little knowledge and few constructive attitudes towards the services, principles, and practices of their organizations.

"We presented seven simple factual statements about cooperatives to farm women in several New York State areas. When we graded the responses as to correctness, those women who were members of cooperatives scored 27 percent. The women who were not members of cooperatives scored only nine percent correct. A grade of only 27 percent certainly emphasizes the lack of knowledge that exists among women members.

"We also asked these women ten questions about general cooperative policies. One in each four did not answer a single question and only one in five answered all ten questions. Many of the answers given were clearly incorrect.

"We also sought to find out what knowledge was possessed of the services of their own cooperative and the extent of their participation in its activities. Many of the women are uncertain even of their membership in the cooperative and few knew how membership is obtained. Most of them never attended a meeting of the cooperative. They left this to their husbands. Because of the few direct contacts these women have with their cooperative, most of them have little knowledge of their local unit, to say nothing about the central organization."

One serious aspect of lack of information is that it may result in a personalized type of management where policies are established by

management instead of the farmer directors. They should establish policy to be carried out by management.

The farmer cooperatives can take a page from the book of the consumer cooperatives. While they are not doing a complete job of member education, they appear to be more conscious of the need for it. Only as the patron member is able and willing to see that qualified men are elected to the Board of Directors and that they do not continue to serve beyond their usefulness does he meet his responsibility. He thus can assist in the establishment of sound policy through his knowledge and interest. Only thus can the farmer cooperatives avoid an eventual personalized autocratic type of leadership. A system of checks and balances must exist to keep the association in control of the members and the Board and management responsive and sensitive to their wishes and needs.

George H. Maughan, patron of the G.L.F., Ithaca, New York, said at a discussion at the American Institute of Cooperation at Purdue University, "Farmers need much more help than they are getting in developing a cooperative philosophy. We are not thinking of the academic methods and facts so often stressed by professional teachers. We have in mind the matter of participation—thinking, speaking, acting in local groups without stress on how this is done.

"Managers, all responsible employees of cooperatives; are the natural teachers and leaders in this work. They should assume the duties of educating and actuating their employers—the patrons. This takes wise, unselfish, statesmanlike leadership."

But to do membership education we must know what we mean by cooperation. How can we measure what determines whether a farmers' business organization is cooperative or not? If it is really cooperative and that seems a desirable objective, how can it be kept cooperative? Too little of this type of research has been done. We need more analysis similar to that just presented by Professor Frank Robotka.

Another aspect of member responsibility and closely related to it is that of keeping the association financed by those who use it. The fact that most of the cooperatives are financed by capital stock which is considered as residual capital has tended to lessen the cooperative concept of capital on a loan basis. Many cooperatives could avoid the feeling of members that their stock is worth more than par if they rotated their capital. It is not necessary to have a

fixed date for repayment which might be embarrassing, but on an overall basis retiring the oldest stock and issuing new on a patronage basis. This has two advantages. It gradually eliminates the non-patrons and results in capital contributions more nearly in line with patronage. Non-members who do business with the cooperative can become members through patronage refunds without making direct capital contributions.

Many farm cooperatives have started from scratch. They have had hard sledding to make ends meet. The management has grown with the organization, with no previous experience in the same business. This has often led to a lack of adequate regard for the training of men to replace the present executives. Some associations are conscious of this problem, having organized schools for employees, training them on the job. However, many associations have no definite policy for training future leaders. This problem deserves considerable study to provide continuity in policy and to avoid a breakdown in management because no one is trained to carry on if the manager becomes incapacitated.

If farmer cooperatives are to continue successfully to meet members' needs, they must also be alert to their public responsibility. Most agricultural cooperatives consider their organizations pace-makers in a capitalistic free enterprise economy. They have been given certain rights and responsibilities under federal and state laws. The federal government has given them the right to organize without being suspect. What is a cooperative and what is its place in the economy of the Nation? Too little thought and research have been done on this question.

In meeting their responsibilities to the public and in acquainting the public with the role of the farm cooperative in the national economy, a wide difference in ideology has developed in recent years. One group holds the concept of the cooperative as a yardstick to set the pace or provide a measure of the efficiency of the service performed by other agencies. The other has the concept of the "cooperative commonwealth" in which all business would be done cooperatively. The first group thinks of cooperation as a means of evolution in our economic system, while the second group conceives of it as a revolution. There is no reason to believe that if all the business were done cooperatively that any more efficiency would be attained than under our present system. The cooperative should function as an anti-monopoly control instead of becoming a

monopoly itself. It was designed to function in a competitive free enterprise economy.

Another phase of cooperation closely akin to this that needs examination if the public and the members themselves are to understand the true place of the farm cooperative is that of correct terminology. When cooperatives were first organized, they took over lock, stock, and barrel the legal and accounting terms used in business, this in spite of the fact that the terms did not describe the functional services of a cooperative.

Take "patronage dividends" as an example. A "dividend" in common business parlance cannot be declared unless there is a profit. Cooperatives do not make profits for the association itself. The adjustment made for over-charge or underpayment in a cooperative is a patronage refund or final payment. Is it any wonder the term has been misunderstood?

And yet "patronage dividend," without much question about its correctness or adequacy has become a part of the legal terminology in many of our state laws in spite of the fact that it does not describe accurately the transaction that takes place. Had this question of terminology been examined more critically a quarter century or more ago, we might have had a clearer legal picture of the cooperative concept on the part of the public today.

So the cooperatives need to re-examine critically the whole legal structure applying to farm cooperatives, to evaluate them in terms of the relationship of the farm cooperative to the public welfare. Some of the questions involved under this head are monopoly and the tax question. Are any changes needed in either federal or state laws for clarification? For example, in trying to modernize the cooperative laws in one state recently, the cooperatives found that, if the state law were strictly adhered to, it was not possible to comply with the requirements of the federal law—evidently something that needed study.

The whole question of taxation needs careful study. A great deal of information and misinformation has been issued about the tax question. Marked differences of opinion apparently exist among the cooperative leaders. The Small Business Committee issued an excellent report, but some parts of it are not too clear.⁴

⁴ "The Competition of Cooperatives with Other Forms of Business Enterprise," First Interim Report from the Committee on Small Business, House of Representatives. House Report #1888. 79th Congress, Second Session, April 9, 1946.

There seems to be pretty universal agreement that, provided a contractual obligation exists, patronage refunds, or final payments made to patrons, are not income to the association. The difference of opinion occurs on reserves or capital retains other than valuation reserves. If a cooperative is really cooperative, retains do not belong to the association and so are not profit on which the association can pay a tax. But J. A. McConnell, General Manager, G.L.F. Exchange, does not think all savings should be allocated.

"Refunds not Taxable. It is my belief that the true patronage refund, based on use rather than invested capital, returned to farmers or members is, in fact, a reduction of costs to the member and should not be subject to taxation, except in the hands of the farmer, as it now is.

"Taxation of Retained Margins. If other monies retained in the cooperative corporation, except revolving funds, in common use by many cooperatives, which are in effect a loan, are subjected to taxes no greater than those paid by straight business corporations, certainly G.L.F. would not be adversely affected when we consider the freedom of action that this would give us in our cooperative business operations.

"Need for Reserves. It is my belief that the present so-called tax exempt status of cooperatives, requiring them to pay out all net margins in good years, with no chance to set aside adequate reserves essential for protection of the members' investment and the members' service, will, in years of disaster, seriously embarrass and could even wreck a strong cooperative, such as G.L.F.

"This nation, at present, is in grave danger of drastic financial upsets. No one can predict what may be required in the way of financial reserves, when these upsets may come, except that they should be about three-deep. In my judgment, any experienced farmer board would consider it excellent financial policy to set up adequate reserves in times like these, regardless of tax requirements.

"Public Relations. The food which farmers produce and sell moves into the towns and cities and is consumed by urban people. Farmers are a part of the business life of the nation. They cannot afford to be in bad repute with their customers. They are engaged in commerce and they have to deal with the people who carry on the commerce of the nation. Cooperatives do not operate in a vacuum, contrary to what so many cooperative purists assume. The standing of this farm cooperative in the estimation of the general public is being hurt, and probably to the real detriment of our necessary relations with business and consumers. Thousands of worthwhile people erroneously have been led to believe that G.L.F. is a tax dodger, without realizing that cooperatives are the instruments of farmers to aid them in producing and marketing food.

"I do not believe we can afford to make our relations with our customers and our business associates difficult and hard to handle and our position costly to defend.

"Summary. To sum up, it seems to me that the bad public relations and

the lack of freedom in our own business, when balanced up against the savings in taxes which might arise from operating on a tax exempt basis in the future, will amount to a net loss. From having been raised among farmers and associated with them all my life, I think I can say that G.L.F. farmers, once they are sure that they themselves, or their organizations, are not being discriminated against under present laws, do not desire any privileges in a really free society that other groups are not permitted.

"Perhaps some of our G.L.F. committeemen may fear that if we should go on to a tax paying basis, it would be impossible to build up adequate reserves for the protection of our G.L.F. Stores against lean years. Twenty-five years ago, this might have been partially true. Today, I am of the opinion, based on a lot of experience, that as the rules and regulations are tightened in respect to tax exempt corporations—as they are and will continue to be—that building up necessary reserves in our G.L.F. Stores, to the point prudent business methods require, will be more difficult on an income tax exempt basis than it would be on an income tax paying basis."⁵

One way to clear the situation would be to allocate all capital retained and thus establish its loan basis. Then these capital contributions, whether they be stock or nonstock, are clearly income to the patrons who can be so notified. This would not, however, meet Mr. McConnell's requirements.

In some associations, these capital retains, after allocation, are printed in the annual report, each patron's equity being listed for the years for which he has such. Another plan used is for the annual membership meeting to approve the action of the Board in the retention of such capital as is needed by the association out of savings giving each patron notice of the amount of his credit. There does not appear to be any justification for exemption of taxes on capital stock for cooperatives which qualify under income tax exemption. Apparently tax exemption status has not appeared advantageous to all cooperatives for according to the Small Business Committee, only about 54 percent of the cooperatives have chosen to qualify.⁶

During the past year, I have been visiting the Land Grant colleges for the American Institute of Cooperation. One of the most striking things to me has been the relatively small amount of research being done in the field of agricultural cooperation in spite of its importance to the agriculture of the different states. In fact, it was very noticeable at the American Institute of Cooperation at

⁵ Portion of General Manager's report at Annual Meeting of the G. L. F. Exchange, Syracuse, New York, October 31, 1946.

⁶ *Ibid.*

Purdue that speaker after speaker mentioned the need for more research. Of course, all of them probably were not thinking of research in the concept of the economist, but there was a definite feeling of something lacking in the analysis of cooperative problems.

The reports of the colleges to the Institute last year indicated there had been a definite reduction in the amount of research being done in the cooperative field. In view of the large sums being spent by industry for research, it would seem advisable that, as soon as personnel and funds are available, research in this field should be reestablished. The new Flannagan-Hope Research Law will probably make available funds for this purpose, but the shortage of trained men will make competition keen among all the projects that need attention. Cooperative leaders will have to take the initiative to see that the most important problems requiring study do receive attention.

One of the projects that merits consideration is the tendency for marketing associations to develop purchasing facilities and purchasing associations to develop marketing services for members. This growth and development may lead to intense competition between cooperatives with low volume, high-cost operation if two or more organizations attempt to operate where there is volume enough for only one to operate efficiently.

The direction of growth of existing associations needs study as well as the formation of new associations where ample facilities already exist. Studies of these developments by public agencies, such as the colleges or the Cooperative Research and Service Division of the Farm Credit Administration could well prevent costly price wars or the cost of unnecessary duplication in facilities and services.

Study also needs to be made of the relations between producer and consumer groups to determine the most efficient methods of moving goods from producer to consumer. Mention has already been made of the need for understanding of membership control and financial as well as legal problems. Through research, the answer to some of these questions could be obtained instead of using the experimental method of "trying it out in the field" which has, in the past, often been costly to farmers as well as to the public.

And finally, one other research project may be needed—that of finding out what cooperatives do to people. Do cooperatives teach

democracy through practice? Are cooperatives a method of preserving the last frontier of democracy? Cooperatives cannot exist in a fascist state. They can exist only in a democracy or under a competitive system where freedom of choice prevails. They are part of a competitive capitalistic economy.

Cooperatives have provided farmers with an instrument to help correct defects in the market concerned with assembly, storage, standardization, grading, processing, risk taking, transportation and sale of farm products. These organizations have enabled farmers to establish and maintain a reservation price in the market place. They have provided a yardstick to judge the efficiency of services by other agencies as well as a means of obtaining greater bargaining power. They have enabled him to improve the quality of purchased supplies and to make savings in their purchase through more efficient methods of operation. Farm cooperatives have proved themselves on the operating or business side. Their continued success as cooperatives, however, will be determined by the degree to which they remain flexible to meet members' needs and maintain a responsive and interested membership. Good business management is absolutely essential, but farm cooperatives, organized for the benefit of the owner as a patron, cannot neglect those problems which are peculiarly cooperative. Farm cooperatives particularly the larger ones, must devote more attention to membership relations and management as well as the problem of public relations, and understanding. Farm cooperatives must take the initiative in determining their place in our economy as part of their public responsibility. They cannot afford to become monopolistic or autocratic. Their goal must be the achievement of greater efficiency and better service both to patrons and the public.

REVIEW OF PAPERS ON AGRICULTURAL COOPERATION*

JOHN H. DAVIS

National Council of Farmer Cooperatives

PROFESSOR ROBOTKA has given us a very clear statement on a difficult subject. In brief, he has given us a master key to an understanding of several phases of agricultural cooperatives which have puzzled many people. That key is forged from the fact that in forming a farmer cooperative, sovereign economic units voluntarily join together through a process of federation to perform activities which are integrated with the activities of the sovereign units. With this key he logically explains why farmers operate their cooperatives on a non-profit basis; why farmers invest money in cooperatives; why the dividends on stock are limited to a nominal rate; why cooperatives distribute patronage refunds; why control is based on membership or patronage rather than investment; and why cooperatives are of necessity a part of a private enterprise economy.

No doubt the fuller text of the book which Prof. Robotka is writing will deal with many of the questions which come to the mind of the reader of the paper. For example, there is the question of farmers seeking government assistance in the creation of certain types of cooperatives—for example in the field of electricity. Is this evidence of an inability to integrate successfully this type of operation through the federation process? Some may question the statement that it is inconsistent in principle for a cooperative to deal with non-members and that “to do so almost inevitably results in the emergence of elements of profit or loss which destroys the distinctive character of a true cooperative.” Is this true if the cooperative distributes savings among non-members on the same basis as members?

Another point that is not specifically covered is that of credit for cooperative expansion. Should cooperation include an integrated credit system also owned and controlled by the sovereign units or should credit needs be fulfilled by the private banking system or by quasi governmental agencies? Related to credit is the matter of financing through stock including preferred stock sold to third

* A review presented at the annual meeting of the American Far Economic Association, Philadelphia, December 27, 1946.

parties. Is this consistent with the cooperative theory? I am sure that most of us will accept the logic and the validity of Professor Robotka's proposition. I sincerely hope that his paper will stimulate other students to delve into the field and to trace out and clarify the many roads leading from his central theme. I am sure that this preview will interest us all in reading his book when it is published.

Dr. Perregaux's paper moves from the present to the future in an attempt to predict the future of farm cooperatives in the United States. Following out the line of thought developed by Professor Robotka one would, I think, conclude that the future of farm cooperatives will depend to a considerable extent on what happens to the sovereign farm units which combine to form the cooperative. If the family farm continues to be predominant, it would seem to follow that cooperatives would continue to exist and possibly to grow both horizontally and vertically. On the other hand, should farm units greatly increase in size, they might become large enough to provide efficiently for themselves the services now provided cooperatively.

Another factor will be the quality, efficiency and adequacy of the service provided farmers by non-cooperative business. The better such service the less will be the incentive for farmers to go into business cooperatively for themselves. The future of farm cooperatives may also depend to considerable extent upon the types of agricultural action programs carried out by government. To the extent that government may get into the handling of farm products or engage in rigid price policies, there may be fewer and fewer functions left for farmers to perform cooperatively. Then, too, there is the question of the direction towards which American will move with respect to free enterprise. To the extent that economic functions may become socialized one might expect that cooperatives would be pushed aside. I hope that other competent students will take up the subject where Dr. Perregaux's paper leaves off and explore the various related subjects.

THE FARM LAND BOOM*

R. I. NOWELL

The Equitable Life Assurance Society of the United States

THE President of our Association has assigned to this paper the subject of a farm land boom. It will be our purpose first to demonstrate and document with specific illustrations that we do in fact have a farm land boom of rather alarming proportions and second to analyze some of the forces behind this boom, including a look at our Federal fiscal policy and its effect on the general price level.

The Equitable Life Assurance Society of the United States is the third largest American insurance company in terms of total assets. For many years we have been a leader in the farm mortgage business. This plug is intended not so much for the sale of life insurance as to indicate that we have been around in the farm mortgage field. We have a salaried farm loan organization with national coverage, except for three or four states. In the big depression the Equitable Society acquired approximately 9,000 farm properties having a book value of over \$80,000,000. After 15 years of struggle with that real estate account, we now have only 50 farms left. We sold the farms at a profit but have had burned into us an invaluable education on how not to make and service farm loans. Hereafter we prefer to operate as mortgagees rather than landlords. The amazing thing to us is how small an impression this real estate experience has made on some of our friends in the business.

In 1936 the Society adopted the normal value concept for appraising farms for loan purposes. Our normal agricultural value is defined as "the amount a local, qualified purchaser typical for the type of farm and the area would be willing to pay for the property for agricultural purposes, including farm home advantages under normal farm commodity price conditions, the purchaser to assume any unmaturing irrigation, drainage or similar liabilities." For normal prices in the surplus producing areas we are using 70¢ wheat, 54¢ corn, 10¢ cotton, etc., on the farm. It was our judgment that in 1936 the real estate market in Iowa and Illinois was unduly

* A paper presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

depressed and using normal values we loaned more than if the farms were appraised at the current selling prices. We have adhered rigidly to this appraisal concept down to the present time. From 1936 until about 1940 our normal agricultural values usually exceeded current selling prices. In 1941 and 1942 normal agricultural value in those states closely paralleled current market prices and there was no great variation in the amounts that institutions would lend. Since 1943 selling prices have generally moved higher than normal values. Most lenders followed the market upward but the Society has taken a more or less sideline position. During much of 1946 the disparity has become so great that we are now willing to close loans on only a small percentage of the properties offered. By referring to our normal value appraisal method we do not wish to imply that we follow it blindly or expect it to provide foolproof guidance in making safe loans. Just the ordinary garden variety of horse sense tells us that prices of farm lands in many locations are now dangerously high and that full loans predicated on such values will certainly lead to trouble.

Commissioner Loans Inflationary

The Federal Land Banks are the only other major lending institutions to our knowledge that have continued to use normal agricultural value appraisals. Reports indicate that by and large the Federal appraisers are doing a good job of appraising, although a few wild loans pop up here and there. It was extremely disappointing, however, to the believers of sound lending policy when 11 of the banks, with the approval of the Governor of the Farm Credit Administration, stated to the Agricultural Committee of the House of Representatives last spring that they could not survive on the basis of 65% loans, but must have the advantage of interest free second mortgage money out of the U. S. Treasury in order to continue in business. I quote from the minority report of the Governor's statement before this Committee:

"With many private lenders basing their loan rates on present inflated values, with ample funds available in the hands of these lenders, the usual normal lending volume of the land banks would, in any event, be curtailed. But, to remove from the system at this time the added 10 per cent of loan value which it can utilize through the Commissioner's lending authority would be a step toward reducing the system to some sort of stand-by organization which might not be able to remain as an efficient and effective

farmers' cooperative lending organization without Government subsidy or increased interest charges to its borrowers."¹

We submit that 75% loans are generally unsound and that the 10% of Commissioner money has contributed substantially to the inflation in farm land prices especially on the lower grade properties. We take this position for the following reasons. First, in the usual fluctuations of market prices such loans often exceed the current value of the property. Second, the Land Banks made comparatively few 75% loans when prices and values were normal. All of their experience with such loans has been gained in an ascending land market, high sale prices and temporarily high net incomes. Third, the Land Banks do not presume to make 75% loans on the highest valued land, like \$200 to \$225 per acre cornbelt farms, because the dangers are so obvious. Instead it chooses to make them on cheaper properties where the risk is less obvious but much greater. Fourth, they will not make such loans on high priced specialty farms, such as loans of \$1500 per acre on well improved citrus groves valued at \$2000 per acre. The Berkeley bank had trouble with loans approaching those figures before the war. Fifth, the Land Banks have made 75% loans in a high percentage of the cases only by circumventing the judgment of its most experienced credit men, the land bank appraisers, by stripping them of responsibility for loan recommendations and by relying on recommendations of the Secretary-Treasurers of the system who are goaded by new business quotas.

The Equitable Life Assurance Society of the United States prefers to take a stand-by position rather than make what it considers are unsound loans.

Inflated Sales and Wild Loans

Mr. Wall who is also on this program will, I assume, present the most recent statistics on farm real estate prices as compiled by the Bureau of Agricultural Economics. His data, of course, represent averages of very large samples and will describe the broad price movements. In order to present a factual picture of the extremes to which the boom psychology has carried prices we circularized the Equitable field force for reports on a few of the high sales that have come to their attention as well as some of the

¹ House of Representatives Committee Report No. 2295 to accompany H.R. 6477 published June 17, 1946.

wildest loan commitments they have known of. Our inquiry produced several hundred cases, but time will permit discussion of relatively few of the many available. The illustrations selected for this paper are not presented as being typical for the state or community but rather the vanguards in a broad forward movement. In recent months, and especially since the elections, there is evidence that land values have leveled off or even receded a bit in some locations. Our fieldmen were cautioned to eliminate cases where the sale price included livestock, farm machinery or growing crops.

In considering some of the current loan commitments it must be borne in mind that good appraisers, even with the best of supervision will occasionally make an error in judgment and will recommend a loan for an excessive amount. We discover a few such loans almost every time we make field inspections. Some of our loans are probably referred to by others as examples of reckless lending. On the other hand when reports are received from different parts of the country that a certain company regularly is making high loans and they show up repeatedly in the records, then we must conclude that the practice reflects home office policy.

We are not concerned about how much a farmer pays for a piece of real estate providing he has cash or can make a substantial down payment from funds accumulated during war-time prosperity. He cannot be injured too much. The ones who are sailing for trouble are those who agree to pay exorbitant prices and mortgage their property for more than it is worth on a long-term basis, expecting to pay the debt out of future earnings. Over 50% of current sales are on a cash or near cash basis, but there is a sizable group of buyers who are incurring heavy debts and are headed for difficulties. Some of the high sales reported from time to time are made to prosperous farmers who have good judgment. They see a choice property and want it for some special purpose, to start a son or daughter in farming, or they may need additional land to block out a ranch or to make better utilization of heavy investment in modern machinery. Unfortunately others in the community hear of such sales and jump to the conclusion that if Illinois farm land is worth, say, \$400 an acre to farmer "A" then surely it should be worth equally as much to them. They overlook the great difference that farmer "A" has cash to back up his judgment, whereas farmer "B" must find a venturesome lender to co-operate in the

speculation. If net farm income were to continue at present levels for 5 to 10 years, many of these purchases would pay out satisfactorily, but if commodity prices or net income should drop say in the next 2 to 3 years, then foreclosure in all too many cases is a strong probability. The whole question facing prospective farm purchasers and farm lenders is a matter of timing. We in the Equitable take the position that the days are numbered and that loans to be safe must now be made in reasonable amounts. We cannot depend on several years amortization to hide lending errors. As the following illustrations will indicate, many companies apparently have unlimited faith in the future. Lending officers of these institutions will argue that farm prices are not inflated and that new loans are being made conservatively, but let us not argue; as Al Smith used to say, "Let's look at the record."

Inflated sales and wild loans are being reported from every state in the Union, but in studying reports from our fieldmen we find most inflation, percentage-wise, to be in suburban acreages. The demand for housing in cities has extended to the countryside and its influence is evident beyond the city limits and from 25 to 30 miles in the case of the larger cities. It must be recognized that the housing shortage is very real and perhaps a longer time will be required to correct it than is true of the shortages in farm commodities.

A 90 acre farm, having a modest set of improvements, located 3 miles west of Ft. Wayne, Indiana, was appraised by the Society at a normal agricultural value of \$11,500. This farm recently sold for \$32,000. An Ohio life insurance company closed a \$15,000 loan to the purchaser.

Another property containing one acre of ground and a new brick home located on the outskirts of Pocatello, Idaho, carries a normal value of \$8000 and an Equitable Society loan of \$4000 was made in 1945. This property sold in 1946 for \$19,000. It was resold for \$21,000 and a savings and loan association issued a loan commitment of \$13,000.

A well improved 40 acres with full water right adjoining the city limits of Twins Falls, Idaho, was purchased in November 1942 for \$12,000. This was about its normal agricultural value. It sold recently for \$40,000.

Some of the purchases of suburban real estate are probably made with a view to future sub-division possibilities. Local banks and building and loan associations are making the fanciest loans on such properties.

Western cattle and sheep ranches are getting a big play on this movement. New Mexico lands have been selling high as a kite.

Grasslands in eastern Colorado that nearly blew away in the big drouth are selling at \$10 to \$15 per acre. These lands reverted to the counties for delinquent taxes in 1932 to 1935. Native ranchmen went broke even though they had free range over the whole country. Now the cowmen from Texas have moved in, assembled large blocks and put it all under fence. They are going to show the Colorado boys how to do it. Similarly the displaced boys from Colorado are moving into Wyoming, Montana and South Dakota to buy up the "cheap" land. The grass on the other side of the fence always seems greener. After the big November snow the Texas boys probably will better understand why Colorado grass seemed so cheap.

In Lincoln County, Colorado 800 acres located 18 miles north of Limon in Township 7 South, Range 56 West, carries a combination Land Bank-Commissioner loan of \$7100 or \$8.87 per acre. This place is well improved and has 360 acres of farm land and about 440 acres of grass. The farm land in this area is so uncertain that major reliance must be on livestock income. From this standpoint the unit is definitely short on grass. Our fieldman gave this unit a normal agricultural value of \$6500 or \$600 less than the Federal loan. During the late 1930's and early 1940's similar grassland required salesmanship to move it at \$3.00 to \$3.50 per acre. Not many years back the Federal Land Bank owned over 300 farms in this county and a number of them sold for \$1.75 to \$2.50 per acre. In this general section of eastern Colorado and western Kansas, wheat lands which were considered sub-marginal a few years back are selling regularly at \$40 to \$50 per acre and some sales are quoted as high as \$100 an acre. The old error of over-valuing cheap land as compared with the good is being repeated time and time again.

While on the subject of sub-marginal wheat land, ponder this one.

1,000 acres located 17 miles southeast of Moro, Oregon, on the breaks of the John Day River, was abandoned during the drouth period from 1932 to 1936. It was foreclosed by the Oregon-Washington Joint Stock Land Bank and sold in 1937 at \$7.00 per acre with a 10% down payment. This year the property sold for \$35.00 per acre with 50% cash.

Let's look at some more ranches.

There is a ranch on the east side of Steens Mountain, 15 miles south of Folly Farm, Oregon. It is a good layout with a permit on the Federal Range for 500 animal units. Part of the deeded acreage was purchased in the late 1930's for \$27,500. Subsequent purchase and improvements have brought the total investment in real estate to about \$40,000. We gave it a normal agricultural value of \$45,000. A loan of \$27,000 or \$28,000 would

be well secured. A California bank closed a loan of \$72,000 on the ranch and \$23,000 on the cattle in January, 1946.

Here is a honey; follow the arithmetic on this one.

A ranch at Lovelock, Nevada, was sold by the Government at public sale in the fall of 1945 for \$180,000. The purchasers then spent approximately \$60,000 on leveling, new ditches, structures, etc. That part of the job was well done; however, there was a very bad weed infestation on all the tillable land, morning glory, white top and knapp weed. There was also alkali showing on all the land and much drainage work still to be done. The owners had an investment of about \$240,000. One of our best appraisers, long experienced in this area, examined this property and found a normal agricultural value of about \$250,000 and suggested a loan of \$125,000. The public records show that a Connecticut insurance company subsequently closed a loan for \$275,000. Rather than a loan commitment this looks to us like a purchase contract.

In the South we find plenty of inflation in the smaller properties but less in the large places where war-time labor shortages made them difficult to operate. Prior to the war sociologists were worrying about what could be done with the negro once the cotton picker was perfected. During the war the negro moved to the cities and relatively few have moved back to the farms. The question now is what to do with the cotton until the picker is perfected.

160 acres in Township 17, Range 12, in Pemiscot County, Missouri sold in 1935 for \$16,000. The purchaser built a home on it at a cost of about \$7500. The Equitable gave it a normal agricultural value of \$26,400. It sold in October, 1946 for \$52,500.

In 1934 the St. Louis Joint Stock Land Bank sold 1,040 acres in Township 3 N. Range 2 E., Lee County, Arkansas for \$9,000. It was resold in 1945 for \$31,500. The purchaser then sold off 292 acres including much of his highway frontage for \$10,500. On the remaining 748 acres in which he had an investment of not over \$21,000, the county records show a Federal Land Bank loan of \$18,600. Our normal agricultural value would be somewhat less than the Federal loan.

A large scale land acquisition program is underway in Oklahoma and Kansas. Here is a typical example.

We had an application for \$4200 on an unimproved quarter in Township 24 N., Range 12 W., in Alfalfa County, Oklahoma. It was selling at \$6500. Our appraiser found the land to be sandy, subject to drifting from wind erosion, not productive and in a poor state of cultivation. As we see it the farm should carry a loan of no more than \$1500. A California insurance company subsequently closed a loan for the full \$4200. We are inclined to wonder if they have ever read the Oklahoma Escheat Law. It will take more than 7 years to get their money out of that one.

In the main, corn belt farmers have used their war-time earnings to get out of debt. But flushed with cash they are running up land prices to about War I levels.

A well improved 160 acres north of Roanoke in Woodford County, Illinois, sold in October, 1946 for \$550 an acre. This sale involved a trade for a piece of town property but the cash consideration was at least \$500 per acre. This farm was used by the Federal Land Bank in one of its appraisal clinics a year or so ago and given a normal agricultural value of \$200 per acre.

Insurance Companies Repurchasing Farms

The attitude of institutional lenders toward corn belt farms has undergone a remarkable transfiguration in the last 5 years. In the late 30's and early 40's they were hell-bent on selling their foreclosed properties. Now that policy seems to have been a sad mistake and most of them are actively buying back new holdings.

In 1942, which incidentally was not a depression year, an Iowa insurance company sold 280 acres in Township 88, Range 31, Calhoun County, Iowa for \$34,000. Four years later a Connecticut insurance company closed a \$35,000 loan on this identical property.

Think of the legal fees, commissions and foreclosure costs that might have been saved if the companies had gotten together and traded among themselves.

The Society acquired a 280 acre farm in Township 86, Range 32, Calhoun County, Iowa through foreclosure of an \$18,000 loan made in 1925. The principal balance at the end of the foreclosure period was \$16,221. We managed this farm four years and considered ourselves well out when we sold it in 1942 for \$21,000. In May, 1946 a New Jersey insurance company recorded a mortgage of \$21,500 on this same farm.

In Wright County, Iowa, Township 92, Range 24, a quarter section carried an Equitable loan of \$10,000 from 1930 to 1934 when it was foreclosed at a cost of \$10,215. We managed this farm five years and had an average gross income, above taxes, of only \$422, or \$2.66 per acre. It is mostly Buckner loam of medium quality. There were some wet spots and buildings were just fair. We sold this farm in 1941 for \$9700. This past July, it re-sold for \$21,400, including the 1946 crop. A New Jersey insurance company closed a loan of \$12,000 to the purchaser.

Another Equitable farm in Township 111, Range 50, Brookings County, South Dakota, was sold in 1941 for \$8000. A New York company closed a loan of \$8000 on this property in the summer of 1946.

As most of you know, the Society is not noted for having given its real estate away.

When the original Servicemen's Readjustment Act of 1944 was

enacted, Congress was very conscious of the dangers of inflation. The law provided as a condition to guarantee that the purchase price of the property should not exceed its reasonable normal value. The reasonable normal value was defined as the normal market value, which reduced the law to a pious gesture. In order to get action Congress amended the law in December, 1945, omitted the word "normal" and provided as a requirement for guaranty that the purchase price paid by the veteran should not exceed the "reasonable value." "Reasonable value" has been defined as "a fair price or cost in the light of prevailing conditions." Efforts made by the Veterans Administration to render a proper service, to place responsibility for sound lending upon the lender and to keep the veteran from being "gyped" have been only partially successful. Various agencies including agricultural colleges and the Agricultural Extension Service have put forth an effort to inform veterans on farm purchases. Apparently too many lenders, however, reason like a banker in Maryland I heard of who financed a veteran for a loan of \$10,500, the full purchase price on a small farm which was attractive to the veteran because it afforded a place to live. The banker commented that the property would never sell for less than \$6,500 and the Government guaranteed the other \$4,000. We decry the complacent reliance of many lenders on the Government to underwrite, insure or guarantee them against all risk of loss. Lenders who ask the Government to insure all risks lay themselves open for regimentation and domination by Government in times of trouble.

In Township 109, Range 37, Redwood County, Minnesota, a farm lies in two tracts, the unimproved one being badly cut by a creek, the soil is light with much of it sandy, the buildings are light but in fairly good condition. The farm recently sold to a veteran for \$14,400. The Equitable fieldman placed a normal agricultural value of \$10,500 on the property. A New Jersey insurance company closed a loan for \$11,400 with \$4000 guaranteed by the Government. In addition to the mortgage debt this borrower had a chattel mortgage from a local bank of \$6000, or total a mortgage obligation of \$17,400.

Here is another, but we are not certain if this one was qualified under the guaranty provision of the G. I. Bill of Rights.

In December, 1945, the Society field representative was asked to examine for a loan, a farm in Township 18, Range 13, of Cass County, Illinois. It was all sand. The owner had listed it with a Springfield broker at \$3000 net. The broker added his commission, and for trading purposes asked

\$4000. A veteran came in and paid the full asking price and made a \$1000 cash down payment. An Illinois insurance company made a \$3000 loan for the difference. The broker kept the \$1000. An adjoining landowner told our fieldman that he refused to buy this farm a few years ago when it was offered for sale at \$1250.

So much for the record. If any of you need more evidence that we are in fact in a farm land price and lending boom I have a full briefcase for your inspection. Why then, might we ask, are such loans as I have described being made? Surely investment officers seeing their portfolios and net yields shrinking, would not make such loans to avoid cutting payrolls or trimming high salaries. They probably rationalize about as follows.

Agricultural Output up a Third

Agriculture has undergone a technological revolution which results in more efficient production. The Government, they say, has learned to stabilize farm commodity prices. We have Congressional guarantees of 90% of parity prices. We will never again see 25¢ corn, 5¢ hogs, or 5¢ cotton. We have had a 10% increase in population over pre-war and people have learned to eat better. We are told that the world is starving and naked and continued relief exports for many years will be required before war-torn nations can again become self-sufficient. Interest rates on farm mortgages which now are generally 4% permit farmers to carry heavier loans than in the early 30's when the rate was 5% or 6%.

Our good friend, Henry Wallace, and a sizable following of left wingers, insist that we must and shall have full employment at high wages in the future so as to maintain a high level of business activity, high purchasing power and high prices. Finally, they argue the Government must maintain a high price level in order to retire our astronomical national debt of \$262 billion.

Let's examine some of these arguments for a moment and see if they do necessarily add up to a high farm commodity price level for the future. We all know that agriculture has undergone a technological revolution. American farmers are now producing one-third more products with 10% fewer workers than before the war. That's where the rub comes. At first it was thought the increased productivity was the result of abnormally favorable weather conditions, but actually the causes are more permanent than that. Mechanization of farming has probably been the greatest force in bringing

about increased productivity. The general purpose tractor on rubber has permitted farmers to overcome many of the handicaps caused by weather, especially on heavy soils, as when tractors seeded corn around the clock after wet springs shortened the 1943 and 1944 planting seasons. The long list of modern implements such as combines, pick-up hay balers, corn pickers, cotton pickers, flame weeders, sugar beet planters and toppers, all make for quicker and better jobs of farming with reduced manpower. Hand in hand with mechanization is the greatly increased use of fertilizers and lime, chemical defoliators, weed killers and improved insecticides. Probably next in importance in this revolution is the widespread adoption by farmers of hybrid seed corn and improved crop varieties which are high yielding and more disease and weather resistant. Progress in animal husbandry has likewise been rapid. Better breeding, feeding and management practices have resulted in more and better quality of animals and animal products.

The optimists (or shall we say ostriches) add this up to mean more efficient production, higher standards of living and greater debt-paying capacity. We add it up to mean bigger and better surpluses, lower prices and a renewal of the grim battle for survival among farmers. As we know too well, when prices of agricultural commodities begin falling, farmers do not restrict output to the orderly demands of the market, like industry, but each man in his efforts for survival produces to maximum capacity. After several years freedom we doubt if farmers will again willingly submit to rigid acreage control programs and to being pushed around by bureaucrats. Cash inducements will be attempted but the taxpayers might have something to say this time.

Can We Export Our Surpluses

How about exporting our surplus products? In our opinion the war-torn countries as well as the ones that are perpetually hungry will consume unlimited quantities of American food as long as we deliver it to them on a Santa Claus basis, but when we offer them food on a cash and carry basis exports will stop abruptly. Sooner than many think exports for relief will be over. As long as there was starvation in Europe the American people were generous in sharing their food. Europe harvested relatively good cereal and root crops in 1946. Their livestock numbers were only moderately reduced during the war and while there are still shortages in edible fats, oils and sugar, there are enough basic foodstuffs available to keep

people alive. Prior to the war it was the policy of most European countries to become as near self-sufficient agriculturally as possible. Farmers were protected by various devices including tariffs, labor quotas, security regulations and rationing of foreign exchange. As for the future, we expect these same policies to continue. We do not believe that exports of farm commodities can longer be depended upon as an important price supporting factor. On the contrary, we have reasons to believe that Hawaii, Puerto Rico and the Philippines will be dumping sugar, fats and oils on our doorstep in the near future. Already American wool growers, the United States Chamber of Commerce and the secretaries of 13 southern state Departments of Agriculture are talking higher tariffs in order to protect our farms and ranches from foreign competition.

Market Price Supports

How long can we depend on the Government to support farm commodity prices at present levels? The commodity loan program was incorporated in the Stabilization Act of October, 1942. At that time the country was desperately in need of expanded food supplies, and our planners assumed that farmers would be reluctant to make the necessary changes in their farming methods to produce the required amounts. Actually the farmers had no chance to demonstrate that reluctance because production controls were continued in effect to the very day the reversal of policy was announced. Under the Act basic farm products have a loan value of 90% of parity for a period extending two full years after the year in which the President, by proclamation, or the Congress by concurrent resolution, declares that hostilities are terminated. Thus far no such declaration has been made. Using War I as a precedent such a declaration could be delayed until almost 3 years after V-J Day, which would mean a continuation of farm price supports until the end of 1950. This law provides no controls or restraints on total production. Unless we are badly mistaken Congress will be compelled to substantially revise the Stabilization Law of 1942. A balanced United States Treasury budget could not stand the onslaughts that such an unbridled agricultural production program would entail if continued until 1950. Already Secretary of Agriculture Anderson has appealed to the new Congress, as an urgent matter of business, to take a fresh look at the agricultural support program.

The 1946 potato crop with which officials are still struggling has

cost the Treasury over \$80 million. You have probably seen photographs of steamrollers crushing potatoes on California airports. Millions of bushels have been forced on unwilling distillers for the manufacture of whiskey and industrial alcohol. The Government is begging schools, hospitals and penal institutions to accept potatoes on a freight pre-paid basis. Carloads of U. S. No. 1 potatoes costing the Government \$1.65 per bag have been used for cattle feed. Other millions of bushels have frozen in fields in unprotected ricks. Potatoes are a minor commodity. When the Government starts grappling with surpluses of the basic commodities including corn, wheat and cotton, to say nothing of scores of minor products, it will make the old Federal Farm Board look like pikers. The costs will stagger the imagination. In our opinion the American taxpayer is thoroughly aroused and regardless of pressure from farm organizations no longer will tolerate such waste, such extravagance and such foolishness.

Furthermore, the effects of maintaining war-time prices for two or three years may have a disastrous long-term effect through the bidding up of land prices. Already Long Island potato land is selling for \$800 per acre. The price would be nearer \$500 if potato prices had been allowed to seek their normal level. One refreshing bit of sanity comes from the egg and poultry producers who, profiting from the potato debacle, have petitioned the Government to reduce the support prices on their products to avoid serious overproduction and consequent losses in capital investment. Farmers, generally, would be a lot better off in a few years if they now recognize the dangers of inflated land values arising from these high support prices and exercise more of the leadership and common sense shown by the egg producers.

High Price Level

Now for the contention that the Government must maintain a high general price level in order to service and retire the national debt. On the very face of it this contention is fallacious. The statement implies that a higher price level will be maintained than would prevail normally. We see no other implication. How is an artificially high price level maintained? There are several different methods but all of them amount basically to deficit spending by our Federal Government. That is, an artificially high price level is maintained by the Government spending more than it takes in as taxes. What

does that do? Instead of helping to reduce the national debt it increases the national debt. Therefore, we say that this popular assumption, or shall we call it dogma, is a fallacy on its very face. Furthermore, if it could be accomplished it would be the greatest deliberate hi-jacking of the savings and the security of the people of this country that ever was perpetrated. To maintain artificially a general price level at twice pre-war, means cutting in half all of your savings in the form of life insurance, social security benefits, savings accounts and savings bonds. It means confiscating half of what the frugal people of this country have worked and sacrificed years to save and the irony of it all is, it would increase rather than decrease the national debt.

Full Employment

How about the illusion of full employment at high wages? As we indicated previously, the leftist fringe insist that we must have full employment at high wages so as to maintain a high level of business activity, high purchasing power and high prices. I submit that full employment at high wages in a private enterprise economy is undesirable and self-destroying. Although some may term this position anti-social, I fully believe it is undesirable to have this brand of full employment if we are to continue our democracy in this country. As Charles O. Hardy, of the Federal Reserve Bank of Kansas City, so well puts it, "The fact is that collective bargaining with strong unions, price stability, and full employment are incompatible. We can have any two of these, but not all three. So long as union power is not dampened down by unemployment there is no apparent power in the state strong enough to check a parallel upward sweep of wages and prices".² There are many jobs that are not productive of high wages. There are many workers who cannot or will not earn high wages. If we wish a regimented system, a planned economy, as many professional economists seem to prefer, then full employment fits into the picture at whatever wage a benign Government decrees—while it lasts.

This country has reached its high development through free competitive enterprise. Some monopolies have existed and do exist but the basic framework of our system is competition. We are the strongest nation on earth because of the benefits derived from

² Prices, Wages and Employment—Board of Governors, Federal Reserve System, Washington, 1946.

individual entrepreneurs fighting for the favors of the buying public. It has been hard on the incompetent, the inefficient and the lazy, but it has been good for the public. The standard of living of all of us including our workers would not be what it is today if it were not for this system. When we lack competition in industry the products suffer, the service suffers and the price is higher. The same thing is true of our labor supply. When jobs are so plentiful that one can quit a job today and get another as good or better tomorrow, there is an insidious loss of desire to do good work.

Couple a super-abundance of jobs with outright encouragement of stalling and wasteful division of work and your labor force becomes very inefficient. When, in addition to an over-abundance of job opportunities you have monopolistic control of much of the labor force in the hands of a few labor leaders, you have conditions which dim to insignificance those which brought about the enactment of our anti-trust laws and which sow the seeds of anarchy. I repeat a little competition for jobs, not too much, but some, is necessary in our competitive system. When the available number of jobs drops too far below the labor supply the Government should furnish employment on useful public works at subsistence levels. Our prevailing unemployment benefits have been pegged so high that much of the incentive to do satisfactory work and to find and keep private employment has for many people been destroyed. Witness the 52-20 Clubs for example. Our standards of destitution have become too high for the good of our people.

The factors we have analyzed to this point, in our opinion, tip the scales heavily towards lower commodity prices and lower land values in the future. The big uncertainty, of course, is the trend from here out of the general level of prices. We think it entirely possible for the general level of prices to continue upwards while farm prices go down. In such event farmers would be caught in a vicious squeeze between rising costs and falling gross income.³

Debasing the Currency

When we come to consider the question of trends in the general level of prices, we lose most of our confidence. Here the credit stage is all set for an inflation that could blow the roof off. The surprising thing is that it has not blown before now. Whether it can be avoided

³ See The Equitable Society *Farm Loan News* issue of June, 1946 for a discussion of this subject.

will depend almost entirely on political considerations, whether the incoming Congress and the next Administration will have the fortitude to reverse Federal fiscal policies of the past 16 years; policies which have increased our money supply from \$55 billions in 1929 to roundly \$165 billions today.

In financing World War I our Treasury officials set the interest rate on liberty bonds at a level which resulted in their sale, but not without pressure, to the investing public. The average interest rate was slightly over 4%. By contrast, during the second World War our Treasury experts contracted a fetish for low interest rates. They were determined to finance the war at a low rate regardless of consequences to the economy. On February 28, 1946, which marked the date of maximum debt, the average rate on \$279 billion was 1.972%. When the buying public and investing institutions refused to furnish the New Deal with sufficient funds at abnormally low interest rates, then the experts bought off the bankers and rigged the market by a process which in its long-term effects was the same as if they had printed greenbacks. When the war broke out they already had a background of experience for debasing the currency and were ready to go. You are all familiar with the extent to which farmers surrendered their liberties and sold their birthright to the Agricultural Adjustment Administration, and we regret to say to the Soil Conservation Service, for a mess of pottage. Many of you may not have realized, however, the extent to which bankers of this country similarly have been bought off by our very clever Treasury experts. Deficit financing through the sale of Treasury bills and certificates to the commercial banking system is just another way of printing greenbacks. Only this way it costs the Treasury $\frac{3}{8}\%$ and $\frac{7}{8}\%$ for interest to keep the big bankers quiet while their institutions are used to issue greenbacks,—greenbacks disguised as bills and certificates simply by inserting an interest paying clause.

We would prefer to avoid in this paper a technical discussion of Treasury and Federal Reserve policy, but we can hardly discuss land values intelligently without also considering what has happened to the stuff we use as money. Will you, therefore, please bear with me and let me try to describe just what happens. For a moment let's assume that all of our commercial banks have been merged into one colossal institution. Then let's trace through its books the entries that are involved in the purchase of Government bonds.

We'll start off with a cautious purchase of \$100 million of $\frac{7}{8}\%$ certificates from the Treasury. To make the scheme work smoothly the Government opens a war loan deposit account of \$100 million. Stating it another way, the combined banking system now owns \$100 million of $\frac{7}{8}\%$ certificates and owes the Treasury \$100 million represented by a war loan deposit account. In making this purchase not a single dollar changed hands between the parties. The Treasury to cover operating expenses of the Government will draw out its deposit, let us assume, over the next few weeks by making checks payable to various firms and individuals. This has the effect of reducing or eliminating entirely the Treasury's deposit but this spending money must reappear in other deposits because it cannot get out of the banking system, except as people withdraw currency and put it under the mattress or in safe deposit boxes. After a little delay this \$100 million that was in the Treasury's war loan deposit account with the banks is transferred to other commercial or private deposit accounts, but there is still \$100 million of new money in the system.

When the other deposits start increasing because of the transfer from the Treasury's war loan account, the bank must increase its reserves with the Federal Reserve, since reserves must be maintained at about 16% of private and commercial deposits. No reserves are required on Treasury war loan deposits. In order to raise this money the bank sells \$16 million of certificates to the Federal Reserve. This reduces new certificates owned from \$100 million to \$84 million and increases cash reserves by \$16 million. The net effect of the operation to this point is to have increased bank assets by \$100 million, \$84 million of which are earning $\frac{7}{8}\%$, and the bank's deposit liability by \$100 million. The equity in the business has not increased. We have simply manufactured new money to the extent of \$100 million the same as if greenbacks had been issued by the Treasury. Moreover the risk has not increased because these are short maturity certificates, they all mature at face value in 12 months.

Seven-eighths percent on \$84 million is pretty good pay for the banks' cooperation, but the Treasury wants more money, so this time let's try a billion. The bank buys a billion dollars of Treasury certificates and reopens the Treasury's war loan deposit account for a billion dollars. No change in reserves is necessary because as we said before, the war loan account is exempt from the statutory

reserve requirements. Now we are getting somewhere. We have \$1,084 million drawing interest at $\frac{7}{8}\%$ without putting a dollar of our own money in it. Next week the Treasury draws out \$500 million but it pops up again in some other accounts, the only difference being that we have to put up more reserves with the Federal Reserve. Sixteen percent of \$500 million is \$80 million, so we sell \$80 million of our certificates to the Federal Reserve and increase our reserves by that amount. Next week the Treasury checks out the rest of the billion dollars and we put up \$80 million more reserve and reduce our certificates by that amount. We have a net increase in our earning assets from this second operation of \$840 million. Our reserves are increased by \$160 million and the people's spending money is increased by \$1 billion.

To be sure, this is over-simplified somewhat. We are picturing the operation of the composite banking system. In the transfer of funds from the Treasury accounts to individual accounts there is some "frictional lag" but very little "frictional loss." Funds go out of one bank but come to rest in another.

Now we've really tasted red meat. We know the arithmetic and a subscription of \$10 billion would not scare us. We'll make $\frac{7}{8}\%$ on 84% of it, yes on 100% of it for awhile. As long as the Federal Reserve supports the market we might replace part of our $\frac{7}{8}\%$ certificates with longer term bonds at 2% or even $2\frac{1}{2}\%$. When this third operation is completed we will have \$8,400 million more Government securities, and the people's spending money will have been increased by \$10 billion.

Thinking of ourselves as the banks collectively, from these three Treasury operations we have 9,324 million dollars earning interest at $\frac{3}{8}\%$ to $2\frac{1}{2}\%$ and we have no more equity in our banking business than we had before. The people's spending money has increased by \$11,100 million. Governor Eccles has called this "monetizing the public debt." That is a polite way of describing it. A less palatable but more accurate way is to call it printing greenbacks and to call the interest on those greenbacks "hush money."

This kind of financing ran our bank deposits and money in circulation to a peak of \$180 billion, an increase of nearly \$100 billion during the war years. The principal factor in bringing about this great increase in the volume of money is reflected in the figures showing a corresponding increase in the holdings of Treasury obligations by the banking system.

Debt Must Be Demonetized

Now as I said before, this is a little over-simplified. You may say that in the later war loan drives, commercial banks were prohibited from subscribing to Treasury issues. That is true, but the fact remains the banks bought billions of Treasury bonds in the open market. In their eagerness for earnings they bid the price of 2% and 2½% bonds to fancy premiums and are still buying these issues on the open market when they can find them. They have no hesitancy in doing this so long as they are assured of credit accommodations by the Federal Reserve Banks and such accommodation may not be confined alone to Treasury paper. The liberalization of the Federal Reserve Act during the 30's governing advances to member banks opened the doors to a broad class of collateral. As a consequence they are buying corporate issues at unbelievably low rates. Unbelievable unless you know the arithmetic by which they came by their funds.

By contrast let's consider what happens when the Equitable buys \$100 million of new Federal securities. In this case we draw checks on our depositories in favor of the U. S. Treasury and reduce our deposits by \$100 million. The bank's reserves are temporarily reduced by \$100 million and the bank's lending power is restricted by, roughly, five times that amount. Of course, the bank's reserves are replenished as soon as the Treasury spends its \$100 million. Instead of the securities serving as an additional credit base they are now held in the Equitable's vault at 393 Seventh Avenue. No new money has been created. If the Equitable were to buy \$100 million of a refunding issue or of an existing issue now held by the banks, the effect would be to reduce bank deposits by \$100 million and, of course, bank holdings of U. S. securities by the same amount.

I think we must recognize that during the last decade and a half the banking system has developed an almost perfect technique for providing politicians with vast funds without the public really knowing what is involved. But it is time to realize as Allan Sproul (President of the Federal Reserve Bank of New York) pointed out early this year, that "we cannot expect or permit some fourteen thousand individual commercial banks to establish national credit policy for us in this reconversion period." Steps must be taken, while there is still opportunity, to place our fiscal, monetary and credit policies on a sound basis, a responsibility that rests squarely

upon the Board of Governors of the Federal Reserve System and the officials of the United States Treasury. And no group can have a greater interest in this objective than the bankers of the nation, for if unsound policies continue much longer the blame for the grief which must follow is very apt to be placed on the bankers themselves. We get a feeling of despair when we consider the consequences of Federal Reserve policy in recent years and then to see them frittering away their time amending and administering regulation "W," as a means of controlling inflation. Control of instalment buying is, of course, a step in the right direction; but it is a mere drop in the bucket as compared with what is really needed. They play with symptoms and ignore basic causes. We are reminded of a man whose house is on fire and he tries to bring it under control with a "flit gun."

The only way this situation can be corrected is to get these bonds and certificates out of the commercial banking system. It can be done by taxing more than we spend and paying them off with the surplus. This is a slow, painful, tedious and unpopular process. A faster method would be to refinance them with new paper ineligible for bank investment at a rate to be determined in the market by the free play of economic forces unhampered by artificial pegs or other Governmental interference. The additional interest cost to the Treasury probably would not exceed \$1 billion annually. We hope and believe that the new Congress has the necessary fortitude to do it. When our housewives on the meat lines discovered what OPA was doing to our food supply they spoke emphatically, and our new Congress is of their choosing. Unfortunately, it is harder to make them understand what has happened to the real value of their wages, salaries and savings, but if enough of us will discuss and debate the issue, even that can be accomplished.

We don't know what the effect of all this new money is going to be on the farm real estate market. My guess is that the pressure of excess supplies of foodstuffs and fibers will outweigh the excess of money in its effect on prices, while on the other hand the excess of money will probably tend to keep up the prices of many things farmers buy. Farmer's costs of operations will stay high we fear. On the whole we doubt if farming will be much more profitable in the years ahead than it was before the war. Parity in its present concept will be even more difficult to maintain.

FEDERAL CREDIT AGENCIES AS AN INFLUENCE UPON LAND VALUES*

R. C. ENGBERG

Farm Credit Administration

ANY institutions which provide leadership in credit policies and practices also have some influence on the market values of the land and other capital goods financed. A quick and dramatic illustration of such influence might be a situation where the major lenders in an area decided to call all or most of their cattle loans. The resulting flood of cattle forced to market would undoubtedly depress local prices, at least temporarily. Policies of lenders who are leaders in the farm mortgage field are particularly likely to have significant influences on farm land values. In view of the major role of credit agencies supervised or owned by the Federal Government and since there is an unusual interest in the course of farm land values at the present time, it seems appropriate to inquire into the nature and extent of the influence of such agencies upon land values and whether this influence is beneficial or otherwise. Reference will be made principally to the operations of the Federal land banks and the Federal Farm Mortgage Corporation, although the effects of other so-called "Federal" agencies may be of significance.

Year-to-Year Market Price Changes

The value of farm land generally reflects its future productivity as estimated by buyers and sellers. In making these estimates, however, the market tends to give too much weight to current income and too little to the possibility of wide changes in income 5, 10, or 15 years in the future. Possible changes as far as 15 years in the future properly should be considered since it appears that somewhere near that length of time is required under average conditions to pay for a farm from its earnings.¹ Values during World War I, for example, were raised to or maintained at relatively high levels because the possibility or probability of earnings as low as those received in the thirties was not anticipated and

* A paper presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

¹ See, for example, George A. Pond and William L. Cavert, "How long does it take to pay for a farm starting with heavy debts?", this JOURNAL, Vol. XXVI, No. 4, November 1944, and "Capital needed to farm in the Midwest," Minnesota Agric. Exp. Sta. Bul. 389, January, 1946.

discounted. The tragic results of the fact that changes in farm earnings were inaccurately anticipated during World War I and the twenties are well known. Thousands of farm owners found that they had greatly overvalued their farms when buying or financing them. Lenders also found their appraisals had been much too high.

As farms were overvalued in the twenties, they were also undervalued in the thirties. When incomes reached the extraordinarily low levels in the middle of that decade, partly because of low prices and partly because of drouth, the market then failed to give proper weight to the probability that future incomes might be considerably higher. The recession in land values was further aggravated by the depressing effect of the large accumulation of farms acquired by lenders and available for sale.

Beginning in 1933, there were initiated at least three broad programs or policies in the Federal land bank system which have assisted in making market prices more responsive to long-run earnings. These were (1) the normal value concept in appraisals, (2) the broadening of the loan authority, including provision for Land Bank Commissioner loans, and (3) improved servicing of loans, especially loans in default.

Normal value in appraisals. The normal value concept is likely to be recorded by history as one of the greatest single improvements in the technique of making appraisals for farm mortgage loans. The purpose is to establish a value upon a farm which reflects as objectively as possible a realistic estimate of future returns from that farm. It is an attempt to minimize the influence of short-time fluctuations of earnings and particularly to correct the tendency toward overvaluation during periods of unusually high incomes and undervaluation when incomes are abnormally low. Such a viewpoint is especially important when making appraisals for long-term loans. After adoption of the normal concept, land bank appraisals generally exceeded the extraordinarily low market prices during the middle thirties. The reverse situation has prevailed during recent years when land prices have been moving up rapidly. The normal agricultural values established by appraisers are now substantially below market prices. For example, a study of 6,373 land bank appraisals made in all parts of the United States during the year ended June 30, 1946, on farms which had been sold recently, showed that sale prices averaged 43 percent higher than the appraisers' normal agricultural values.

While normal values are intended to have a stabilizing influence, in actual practice they are not and should not be completely static. Technology and economic conditions change and such long-run dynamics must be taken into account. Another study of appraisals made of 804 farms during the period January 1, 1937, through June 30, 1941, and again on the identical farms during the year ended June 30, 1946, showed an average increase between the two periods of 10.5 percent in the normal agricultural value of the farms. This increase no doubt reflects to some degree a human tendency among appraisers to be more optimistic during periods of rising incomes but it is based also on such other factors as increased productivity arising from variety improvement and better crop and livestock practices, authority to recognize value of farm woodlands, and minor adjustments in the normal price of farm products as in the case of tobacco which was increased 6 cents. Such price adjustments, of course, are made only after careful study of the long-run prospects of the crop. While the normal values showed some increase, market prices advanced much more rapidly. In these instances, sales prices were not available for the same dates as the appraisals but the appraisers' estimates of normal agricultural values averaged 99.9 percent of their *estimates* of market value for the early period but only 70.5 percent in the case of the appraisals made during the later period.

Broader loan facilities. A further stabilizing influence, also inaugurated in 1933, was the provision for Land Bank Commissioner loans to supplement the Federal land bank loans. This measure, which authorized the making of Commissioner loans in amounts up through 75 percent of normal agricultural value either as first mortgage loans or as liens junior to Federal land bank or other loans, together with the assurance of ample funds, enabled the Federal land bank system to accomplish the greatest agricultural refinancing program in history. Through that refinancing, the unprecedented tide of foreclosures was checked and many thousands of farms which otherwise might have been added to the huge total held by creditors remained in the hands of their owners. There is little doubt that, in the absence of this refinancing, the additional volume of distressed real estate which would have come on the market would have further delayed the recovery of values.

The availability of this credit service should continue to act as a balance wheel in future emergencies as well as in more normal times.

This function is particularly important in areas not adequately served by private lenders. With respect to future availability, Federal land bank loan authority has been broadened to permit loans up through 65 percent of normal agricultural value. The authority to make Commissioner loans expires on June 30, 1947, but the Farm Credit Administration has been directed by the Congress to submit to it by March 1, 1947, a study, with recommendations, of ways and means of making available through the Federal land bank system loans similar to those now made by the Commissioner.

Improved loan service. A third type of stabilizing influence which can be traced largely to Federal agencies consists of more intelligent loan service. This improvement involves various forbearance arrangements when incomes are temporarily low, devices for adjusting payments both to the season of the year when income is expected and the year-to-year changes in income, and sympathetic advice and counsel when appropriate. Such policies and practices tend to reduce the number of loan breakdowns, thereby diminishing the depressing effect of foreclosures upon local land values.

The experience during the thirties demonstrated the significance and importance of this influence. Borrowers who were making an honest effort to carry their loans and who appeared to have a reasonable chance to work out their difficulties were given an opportunity to do so. Most of these borrowers later were able to pay their delinquencies in full when incomes improved. In this manner, thousands of potential foreclosures were averted and the number of farms on the market for sale by creditors correspondingly reduced.

The three influences just discussed have had and continue to have significant effects upon farm land values. In addition to the direct action arising from the specific loans made by the Federal land banks and the Land Bank Commissioner, there are indirect influences of substantial proportions. The normal value concept, for example, has been accepted in some form by most of the major institutional lenders. This is indicated by the discussions in the meetings of the National Agricultural Credit Committee which is composed of representatives of all the larger lending groups. This committee has met several times a year since 1941 and discussed mutual problems in farm mortgage financing during rising prices. The improvements in loan service mentioned above likewise have been adopted at least in part by many lenders. The wider adoption of the normal value concept and improved loan service has been fa-

cilitated in no small degree by the fact that as a result of the declining work load and accompanying decrease in personnel, many former land bank appraisers and land bank employees are now applying their Farm Credit training and philosophy in loaning activities for insurance companies, banks, and other farm financing organizations.

Land values have risen rapidly during World War II and the trend still seems to be upward. Analysis of the relationship between land values and net income to land indicates, however, that the rise has been relatively slower during World War II than during and after World War I. The influences which have been mentioned undoubtedly have contributed to this slower rate of increase. Other factors also have had important effects, chief among which has been the cautious attitude of farmers. Here again the policies and educational work of lenders, including particularly the Farm Credit Administration appraisers, information and extension services, and operating units, have played an important part in forming and maintaining this attitude. The need for caution has been emphasized year after year during the war and postwar period at annual meetings of stockholders of national farm loan associations and production credit associations and the views of this nucleus of farmers in every rural community no doubt have had a significant influence on the attitude of their neighbors. The dollar amounts of loan commitments in relation to the purchase prices of farms and the continued reference to normal values likewise have had some part in encouraging a cautious attitude. The educational activities of the Farm Credit Administration during the past four years have included 54 radio programs dealing specifically with farm land prices and the dangers of inflation. These have been carried in approximately 16,000 broadcasts. In addition, there have been appraisal clinics and numerous local programs of a similar nature. Thus, without ignoring other influences, it seems probable that the Federal land bank system has assisted to a considerable extent in minimizing inflationary trends during this war period.

Differentials in Productivity of Land

Another type of influence involves the qualitative valuation of farms. Past experience in Federal land bank operations indicates a very definite tendency to overvalue the less productive lands and probably to undervalue the top farms. This tendency has been observed in farm land market prices, in values established by land

bank appraisers, and in the amounts of loans approved by the national farm loan associations and the Federal land banks, including their actions on Commissioner loans.

The reasons for such a tendency have not been fully determined but several may be suggested. It may be that the home value is given relatively more weight on poorer grades of land than on the more productive farms. Probably the most important reason, however, is inadequate knowledge and understanding of the quality of soils and the productivity of farms. Many instances can be found where people from the cities who are unfamiliar with agriculture pay excessive prices for poor quality farms. Cases have also come to the attention of the Farm Credit Administration where young farmers, many of them veterans, are buying mediocre farms at prices which are high relative to their productivity. This tendency is particularly evident at a time like the present when a large capital investment is required to buy good quality farms in established farming areas than purchasers with limited resources can afford. The result is that while the uninformed purchaser may be buying a farm at a price which he can afford, he actually may be getting an unproductive farm and a burdensome debt. Since there are more people with limited capital than with ample funds, the competition for the lower-priced farms may be greater than for higher-priced land.

During recent years, the Farm Credit Administration has devoted a considerable amount of effort to the study of Federal land bank loan experience, by areas classified according to productivity of the farms. In the classification and mapping work, the training and knowledge of the appraisal staff are utilized and an attempt is made to reflect the physical and economic factors which have an effect upon farm income in an area. The land is classified into five areas, net income area 1 being areas having the most productive farms and net income area 5 being those having the least productive units.

Debt-paying capacity of poorer farms frequently overestimated. After classifying areas in this manner, the Federal land bank loan experience since the beginning of the system is studied in an effort to determine how successfully credit needs of agriculture have been served in these respective areas. In general, losses have been very small and in some cases non-existent in net income areas 1 and 2, the most productive areas, but have been progressively heavier in

net income areas 3, 4, and 5. For example, the experience with loans closed from 1917 to 1932, inclusive, in 32 counties in Washington, Idaho, and Montana shows that 3 percent of the loans in net income area 1 were acquired, 6 percent in net income area 2, 13 percent in net income area 3, 22 percent in net income area 4, and 47 percent or nearly half of the loans made in net income area 5 resulted in acquisition of the farms. There was a small profit on the few farms which were acquired in net income area 1, a loss of only \$3 per \$1,000 loaned resulted in net income area 2, \$30 per \$1,000 in net income area 3, \$88 per \$1,000 in net income area 4, and \$266 per \$1,000 or more than one-fourth of the total money loaned was lost in net income area 5.

Furthermore, it should be noted that the few cases where the property was acquired in net income area 1 were largely in the nature of accidents and were practically all foreclosure cases. These farms were held by the bank on the average of only 4 months and the sales resulted in a small profit. On the other hand, the farms acquired in net income areas 4 and 5 were mostly those which were deeded to the bank voluntarily. Being less desirable, the farms were harder to sell and on the average were held by the bank a much longer period than the farms acquired in the better areas. This tended to build up the investment and increase the loss.

A similar relationship between quality of farm and loan experience has been found in other areas. Recent studies of loans closed during 1917-32 in Illinois, Indiana and Missouri, for example, show the following results:

Net income area	4 Counties, central Indiana			7 Counties, Missouri & Illinois		
	Number of loans	Percent acquired	Loss per \$1,000 loaned	Number of loans	Percent acquired	Loss per \$1,000 loaned
1	10	0	0	43	12	\$ 2.57*
2	153	8	\$ 10.12	69	3	.15*
3	313	13	25.69	205	23	10.97
4	56	20	111.27	110	50	25.62
5	0	—	—	56	55	35.86

* Profit.

These data follow the pattern found in all such studies indicating the general tendency on the part of appraisers and loan committees

in the past to overrate the debt-paying capacity of the poorer grades of land.

Capitalized earnings compared with farmer's estimates. Farmers' estimates of sale value likewise do not seem to take full account of the differences in earning power between the better and poorer grades of land. This has been indicated where such farmers' estimates and also records of farm income and expenses have been obtained in connection with economic classification of the land. A group of records gathered by the Washington Agricultural Experiment Station, for example, brought out the following differences:²

Net income area	Farmer's estimate of sale value	Value based on capitalization of earnings
2	\$14,762	\$28,025
3	13,232	15,650
4	8,104	2,475
5	6,275	-200

The farmers on the less productive farms estimated considerably higher values than those which might be warranted purely on the basis of net earnings. Likewise, there was a tendency to be conservative on the best farms.

Considerable progress already has been made in the Federal land bank system toward more accurate recognition of the full differences in debt-paying capacity and productive value between the best and poorest farms. As more mapping is completed and loan experience analyzed on this basis, the differentials will be more accurately reflected in appraisal and loan policy. Through the processes already described, these policies will influence policies of other lenders and thus extend their benefits generally throughout the land market. The accumulated knowledge and influence should be of aid generally in educational work on farm land values.

In this connection, the failure of the market to differentiate sufficiently between good and poor land is the basis for much of the demand for a public farm appraisal service. In the Report of the Committee on Postwar Agricultural Policy of the Association of Land Grant Colleges and Universities published in October 1944, it

² Covers records from 189 farms. See mimeographed report "Economic land classification in King and Snohomish Counties, Washington, and its influence on full-time farm returns," A. W. Peterson, M. T. Buchanan, and B. D. Parrish, Washington Agric. Exp. Sta. No farms were located in net income area 1.

is recommended that "a public appraisal service should be provided so that all prospective buyers and sellers may have knowledge on the basis of which they will be able better to judge the approximate long-time value of farm properties." In discussing the merits of a public farm appraisal service at a meeting of the National Agricultural Credit Committee in May 1945, Dean W. I. Myers of Cornell University stated that an important contribution could be made if such a service could establish proper differentials between the values of good and poor farms.

Capitalization of Credit Improvements

Another possible type of influence on land values arises from the presumed relationship between the mortgage rate and the capitalization rate. The theory is that if the capitalization rate closely follows the mortgage rate, general changes in interest rates are capitalized into the value of the land.³ Thus, if the Federal land bank system has contributed to the lowering of interest rates and to making other improvements in credit terms, the benefit, under this theory, is only temporary since the gains are eventually lost through capitalization into higher market values.⁴ The final effect of the system consequently may be largely to raise the level of land values.

Capitalization rates. The evidence that is available, however, suggests that farmers tend to retain a substantial part of these benefits. Reference already has been made to the fact that the ratio between returns to land and land values has been higher during and before World War II than during the corresponding periods of World War I. Comparing the two prewar periods, the ratios are 1912-16, 4.6 percent and 1936-40, 5.3 percent. For the two war periods, the comparison is 1917-20, 6.55 percent and 1941-44, 7.9 percent. These data suggest that the rate of capitalization during the past 10 years has been higher than it was about 30 years ago.

Interest rates. Mortgage rates, on the other hand, have declined during this period. Contract rates on mortgages recorded show the following trend:

³ See, for example, "Land booms and the mortgage rate of interest," A. A. Dowell, *This JOURNAL*, Vol. XX, No. 1, February 1938, pp. 231-232.

⁴ No effort is made in this paper to measure the effect of the operations of the Federal land banks upon the interest rates charged by other lenders. While the general trend of rates has been downward since the banks began to make loans, it is recognized that other forces have contributed to that trend. There is a firm basis, however, for assuming that the influence of the banks upon interest rates and other terms has been substantial, particularly in the less competitive loaning areas.

Period	Contract mortgage rates charged by: ⁵	
	Federal land banks and Land Bank Commissioner	All other lenders
1920	5.50	6.42
1925	5.45	6.34
1930	5.53	6.39
1935	4.73	5.91
1941	4.50	5.01
1943	4.40	4.88
1945	4.31	4.73

If the trend in the rate of capitalization has been upward, as appears to have been the case, one must conclude that whatever relationship actually exists between the mortgage rate and the capitalization rate is relatively small, or, at least, overshadowed by other influences on land values. Furthermore, there seem to be good reasons why this should be true. For some time a great deal of educational work has been directed toward improving the standards of living on farms. To a significant extent, savings arising from such sources as interest reduction have been and are likely to be used in the future for building bathrooms, installing central heating, and buying electrically-powered equipment for both the home and the farm. Some credit administrators have even observed a reduction in debt-paying capacity in a community following organization of an REA cooperative and installation of power connections. Such savings are used also to purchase other farm equipment, make farm improvements, give the children a better education, and for similar purposes. Likewise, it is quite probable that the educational work carried on in recent years by the Extension Service, the agricultural colleges, the Farm Credit Administration, the American Bankers Association, the National Agricultural Credit Committee, and others regarding the hazards in land price inflation has had no small part in influencing the capitalization rate.

A number of other reasons for differences between the two rates have been mentioned. "Differences in risk, liquidity, and supervisory requirements indicate that the capitalization rate should be higher than the mortgage rate. Also operating to influence capitalization rates relative to interest rates would be such factors as alternative employment opportunities, fear of inflation and unem-

⁵ For 1920 to 1930, inclusive, data on all other lenders obtained from mimeographed report "Average rates of interest charged on farm mortgage recordings of selected lender groups," Bureau of Agricultural Economics, November 1940. All other data from the Farm Credit Administration.

ployment, and the amenity or prestige values attached to farm landownership."⁶

It seems reasonable to conclude that whatever influence the Federal land bank system has had in lowering interest rates and bringing about other improvements in credit terms has resulted only to a small extent in capitalization into higher values. Most of the savings and benefits arising directly and indirectly from the operations of the system probably have been retained by the purchasers of farms and have been available for use in improving their living conditions and increasing their enjoyment of life.⁷

Without modifying this conclusion and aside from the effects on the year-to-year fluctuations discussed earlier in this paper, one other influence of the system upon land values should be mentioned at this point. There are some areas where the mere fact that credit was made available, probably more than the lowering of interest rates, undoubtedly had a distinct firming effect on the land market. Such areas would be found in the South and West where the supply of long-term credit was relatively limited and where buyers previously were more restricted in their ability to purchase because of difficulties in obtaining proper financing.

Effects of Acquiring and Selling Farm Real Estate

The question may be raised whether still another type of influence may not arise in connection with policies followed in managing and disposing of acquired real estate. With a vivid imagination, one might even visualize the possibility of managing the real estate accumulations by Federal agencies with the definite purpose of stabilizing land values. Under such a policy, farms would be fed on the market as a restraining influence when land prices were advancing too rapidly and withheld or offered only at above-market prices when the market seemed unjustifiably weak.

Even if such a policy were desirable and feasible from a public standpoint, there are several practical considerations which would interfere with its execution. In the first place, it seems improbable that the real estate holdings of the Federal land bank system will be

⁶ "The Farm Real Estate Situation, 1944-45," M. M. Regan, A. R. Johnson, and Fred A. Clarenbach, Circular No. 743, United States Department of Agriculture, October 1945, p. 39.

⁷ For a similar view regarding the effect of general reductions in interest rates, see "The Farm Real Estate Situation, 1939-40, 1940-41, and 1941-42," M. M. Regan and A. R. Johnson, Circular No. 662, November 1942, U. S. Department of Agriculture, p. 28.

large enough in future years to exert a controlling influence. As a result of the improved policies in making appraisals, determining the size of loan commitments, servicing loans in force, and instituting foreclosures, it is likely that real estate acquisitions in future years will be substantially less than in the past. Except in localized areas where acquisitions of real estate may be exceptionally heavy because of some combination of unfavorable circumstances, the number of farms to be disposed of by the Federal land bank will not be large enough to be a controlling influence. Even during the period of heaviest sales, the number of farms sold in the past by the Federal land bank system, including those owned by the Federal Farm Mortgage Corporation, never exceeded 7.3 percent of the total number of voluntary sales and trades in the United States in any single year. If distributed evenly, this or some smaller proportion of the total real estate activity is not large enough to have an important influence upon the market.

There would be difficulty, moreover, in following a sales program designed mainly to stabilize land values. The policy under such a purpose presumably would be to withhold or delay sales during periods of market depression and to dispose of accumulated inventories when the market is strong or advancing rapidly. On the basis of the experience during the thirties, the practical difficulty in carrying out such a policy is likely to arise from the probability that sale of the acquired farms can be delayed only at an annual loss. As has already been indicated, the farms acquired are usually the poorer farms. When acquired, moreover, they are likely to be in a run-down condition. The investment is relatively high because of accumulations of taxes, insurance, and other costs and considerable expense for reconditioning for sale. Under these conditions, the costs of holding such real estate are likely to exceed the returns even when the average increases in land values are taken into account. Except during wartime, advances in farm land values have not been sufficient to cover the total costs of holding acquired real estate.

The future influence of the Federal system upon land values through deliberate management of real estate sales policy thus is likely to be small. The principal influence through real estate operations may be through the examples set to other lenders in policies which may limit acquisitions, in pricing the farms which are acquired and offered for sale, and through general educational

work carried on by the banks and other units in the Federal lending system.

Summary

In summary, the greatest influence of the Federal land bank system, including the Land Bank Commissioner loans and the Federal Farm Mortgage Corporation, upon land values has been and probably will continue to be in establishing values that are more nearly in line with long-run earning capacity of farms and minimizing the effects of short-time fluctuations of farm incomes. Probably the greatest single factor in such influence is the use of the normal concept in appraisals for loans.

The improved servicing policies for loans developed during the thirties also have contributed to the stabilizing effect. These policies tend to reduce the number of farms transferred from owner-operators to creditor hands and this in turn means that there will be fewer farms overhanging the market.

Another type of influence likely to be felt gradually as more information through research becomes available, is a better understanding of the differences in the debt-paying capacity between the best, the poorest, and the intermediate grades of farms. Substantial progress in recognizing these differentials already has been made in Federal land bank appraisals and loans and the effects of such progress as it continues should extend beyond the operations of the Federal system.

As stated at the beginning of this paper, the discussion has related practically entirely to the operations of the Federal land banks and the Federal Farm Mortgage Corporation but it is recognized that there may be similar effects growing out of operations of other institutions which are Federally-supervised or owned. This will be particularly true of the tenant-purchase program and other credit operations of the Farmers' Home Administration. The policies of production credit associations through making credit continuously available and adjusting such credit to earning capacity likewise should have some stabilizing influence. Many of these policies already are being adopted by commercial banks and other lenders.

The favorable aspect of these influences seems to be further increased by evidence which suggests that the benefits from lower interest rates and improved terms are retained in substantial measure by farmers and to only a limited extent do they appear to be lost through capitalization into higher land values.

REVIEW OF PAPERS BY R. I. NOWELL AND R. C. ENGBERG*

NORMAN J. WALL
Bureau of Agricultural Economics

MR. NOWELL has presented striking evidence of the extent to which farm land prices have increased during and after the war and how this rise in land values has frequently been accompanied by instances of unsound lending. That we have had a substantial increase in land values for the country as a whole is clearly indicated by the Bureau of Agricultural Economics index of average value per acre of farm real estate (1912-14=100). For the United States as a whole this index stood at 152 on November 1, 1946, a rise of 14 percent from a year ago. Average values are now 83 percent above the 1935-39 base compared with an increase of 70 percent from the 1912-14 average to 1920 in the World War I period. Values on November 1 were above 1919 levels in 34 States and above 1920 levels in 21 States. The State and national averages, however, cover up widely varying situations. In many areas the advances have been more striking than the increases just quoted. On the other hand, many sections of the country report a far more conservative rise in values.

As pointed out in Mr. Engberg's paper, however, the rise in land values so far in this current boom period has not been so great in relation to net returns to land and to net farm income as was the case in World War I. It may be pointed out that the rise in the earlier war followed a long period of rising land values. In the current war period, however, land values rose from a level that had been depressed by the adverse economic conditions of the thirties. As pointed out by Mr. Nowell, land values in Iowa and Illinois did not rise above his organization's normal value until after 1942.

Other aspects of the financial structure of agriculture likewise compare more favorably with the developments which took place during and after World War I. Farm mortgage indebtedness which increased substantially during the earlier war period continued its downward trend during World War II. At the beginning of 1946 such indebtedness was at the lowest level since 1915. The outstanding amount of short-term indebtedness has also shown little change in recent years. Liquid assets in the form of bank deposits, currency, and bonds have been substantially expanded. Of major importance, too, is the fact that a far larger proportion of land transfers have been cash transactions than was the case in the earlier war period. In general, it can be said that agriculture is in a sounder position to withstand the adverse effects of a drop in farm income than in 1920. This does not imply, however, that a drop in farm income would not bring financial difficulty to many farmers who have purchased farm land at the recent high level of prices when such purchases have been financed with heavy mortgages. Whether we have reached an approximate peak in farm land values can not be stated with certainty. The fact, that we have probably

* A review presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

reached and passed the peak in farm commodity prices may indicate that at least in some areas land values may not rise appreciably further.

Mr. Nowell does not leave a clear picture as to what he expects in future developments for agriculture. On the one hand he anticipates that prospective agricultural surpluses will lower farm income and on the other, that the expanded money supply will result in inflation. Certainly some of the conclusions reached in the latter part of his paper will be questioned by many of those here. In analyzing the effects of the technological revolution on the farm, Mr. Nowell comes to the gloomy prediction that this increased efficiency in production can mean only "bigger and better surpluses, lower prices, and a renewal of the grim battle for survival among farmers." While prices received probably will be relatively lower than if this technological revolution had not taken place, it is by no means certain that the increased output produced at lower unit costs will place the efficient farmer in a more difficult position. If agricultural output does not expand more rapidly than the increases in population, per capita consumption and foreign demand, farm income, in general, should not be adversely affected by this increasing output. With the higher level of national income following World War I, per capita consumption of food was at a higher rate in the decade of the twenties than prior to the war. Despite rationing, per capita consumption of food increased significantly during World War II period and as the foods which have been in short supply become more abundant, it does not seem unreasonable to expect some additional increase in per capita consumption. It should also be borne in mind that agriculture is not the only industry in which technological change is taking place. To the extent that industry increases its output with lower unit prices, technological developments in industry may balance those in agriculture. Under these conditions the real income of both agriculture and industry would be increased.

In considering the export demand for American farm products, he states "in our opinion the war-torn countries as well as the ones that are perpetually hungry will consume unlimited quantities of American food so long as we deliver it to them on a Santa Claus basis, but when we offer them food on a cash and carry basis exports will stop abruptly." I think most of us will agree that agricultural exports will be sharply curtailed with the cessation of foreign relief programs. Indeed we would not want our agricultural exports to be maintained at the high level of recent years because in order to maintain that level domestic consumption of many important food products had to be contracted. It seems to be an unrealistic assumption that we can expect no appreciable support from export markets in the years ahead. Certainly foreign countries will wish to purchase tobacco, cotton, fruits, and other commodities for some time to come, if we make them available at competitive world prices. Comparisons are frequently made with the low volume of our agricultural exports in the period 1935 to 1939. During this period, however, drought greatly affected our production and, for the first time in our history, we were net importers of both wheat and pork. The increase in population and per capita consumption have since the beginning of the century taken an increased proportion of our domestic production of agricultural products. We are, therefore, less dependent upon foreign outlets than we were a couple of decades ago.

Our long-range plans in the international field also may have some influence upon the demand for agricultural products. It seems reasonable that the lending operations of the World Bank for Reconstruction and Development, the Monetary Fund, and the Export-Import Bank should have some influence in promoting a higher level of international trade. Furthermore, to the extent that the proposed International Trade Organization is able to reduce trade barriers, this would be an additional factor tending to maintain a relatively high level of foreign trade.

Mr. Nowell seems to feel that the only way we can have a higher price level than before the war is by maintaining it at artificially high levels through deficit spending by our Federal Government. He apparently overlooks the historical precedent that the wholesale price level after the first World War was approximately 50 percent higher in the decade of the twenties than prewar. In this period we had no Government deficits and actually reduced the Federal debt. Likewise, national income in the twenties was maintained at a higher level than in any peak year of the war period. While not subscribing to the theory that the volume of credit alone determines the price level, it seems to us that the expansion in credit which has taken place since the outbreak of the war has been so substantial that we can hardly escape its long-range effect upon our price structure. Demand deposits and currency in circulation which about doubled during and after World War I have about tripled in the more recent war period. Nor is this expansion in the volume of credit solely confined to the United States; it is characteristic of practically every country in the world. It seems to this observer, at least, that there is a reasonable prospect that the wholesale price level and the level of national income in the next decade may settle down to a level substantially above that which characterized the years immediately before Pearl Harbor.

Mr. Nowell seems highly critical of the low interest rate policy adopted by our monetary authorities and states, "when the buying public and investing institutions refuse to furnish the New Deal with sufficient funds at abnormally low interest rates, then the experts bought off the bankers and rigged the market by a process which in its long-term effects were the same as if they had printed greenbacks. When the war broke out they already had a background of experience for debasing the currency and were ready to go." He seems to imply that the low rates of interest paid on Treasury certificates and bills rigged the market at artificially low levels. Looking at the record, however, it will be seen that from the beginning of 1934 to the end of 1941, this country received imports of \$16,850 millions of gold, increasing member bank reserves and providing them with reserve funds with which to meet the abnormal expansion of currency during that period. During that same period, the annual averages of daily holdings of United States securities by the Federal Reserve System increased by about 150 million dollars from 1934 to 1939. From 1939 to 1941 such holdings decreased nearly 400 million, making a net reduction for the entire period of about 250 million. Certainly from the standpoint of supply and demand factors influencing interest rates this was a period which would justify a fall of rates to very low levels. As a matter of fact declining interest rates were characteristic of other major money markets in the world during the same period.

Mr. Nowell likewise seems to feel that the Treasury obtained its money for financing the war under a reprehensible system which was "the same as if they had printed greenbacks." He goes on to give what he calls a "technical" discussion of Treasury and Federal Reserve policy during this period. One could take the illustration which he has given, however, and substitute an industrial corporation for the Treasury and substitute the corporation's note for the Treasury's certificate and we would come out with precisely the same results as Mr. Nowell has reached for Treasury financing. If, as a result of extending credit to industry, commercial banks need increased reserves they may tender either Treasury certificates and bills, acceptances, or other discountable paper to build up their reserve accounts. What he has described is merely the familiar process of credit expansion which has been a part of our economy ever since the establishment of the Federal Reserve System. Why it should be reprehensible when it is undertaken by the Treasury rather than private individuals and corporations, Mr. Nowell has not indicated. Of course, there are many of us who would have preferred to see the war financed with less reliance on bank credit, but it seems to me that that is entirely a different issue from that raised by Mr. Nowell.

Mr. Engberg's paper presents a clear analysis of the extent to which Federal credit agencies have influenced the land value structure. The normal value concept of appraisals, to which Mr. Nowell also adheres has certainly been one of the outstanding advances in lending practices which in the long run should be a stabilizing factor affecting land values. Likewise, the broadening of the loan authority including provision for Land Bank Commissioner loans is a concrete illustration of how a Federal lending agency can become a stabilizing factor in the agricultural economy during a period of economic distress. In his discussion of capitalization rates in relation to land values, however, one may question whether sufficient time has yet elapsed to justify the conclusion that farmers retain a substantial part of the benefits of lower interest rates. In comparing the ratios of returns to land with land values, it may be pointed out that these were higher than 30 years ago because in the period 1936-40 land values were unusually depressed and in the period 1941-44, the ratios were high because of high land income. Neither of these two periods seem adequate for measuring any change in the capitalization rate because of the presence of temporary factors exerting a greater influence than interest rates. Mr. Engberg goes on to say that the value raising effects of lower interest rates were offset by other influences that were not related to lower interest rates. The real issue, however, is whether land values are higher than they otherwise would have been if farm-mortgage interest rates had not declined to the lower level. In this analysis, it seems that we must be concerned with the question as to whether lower interest rates, apart from other influences, tend to increase the demand for land in the long run. One might reasonably conclude, for instance, that those lenders who are loaning more per acre today than in the twenties, on the basis that the farmer's fixed annual payments are no larger because of the lower interest rates, are contributing to an enlarged demand for farm land.

FARM AND HOME PLANNING—A NEW APPROACH TO FARM MANAGEMENT EXTENSION WORK*

M. L. WILSON AND H. M. DIXON

United States Department of Agriculture

ON JUNE 6, 1945, President Truman signed the Bankhead-Flannagan Act. Therefore, when we now talk about "individual farm and home planning," we are using a term that has for the first time legal status in the development of extension programs.

What is individual farm and home planning? Is it as simple as the words sound? Is it extension terminology describing a project or a practice? Or, is it in a much more important category? Should it be called a method—something that affects extension administration and organization, extension goals and farm family participation? Professor J. E. Crosby of Missouri, in speaking before the Extension section of the December 1946 meeting of Land-Grant College Association in Chicago says: "balanced farming (individual farm and home planning) is a method, and not a project." Thus he has added further to what has already been said about both the importance and direction of individual farm and home planning.

First, let us survey the scope of farm planning. Let us ask ourselves if this term connotes a widespread development that has been going on for a number of years. If so, we may be able to say that it represents a movement, a demand growing out of the needs and interests of farm people, as recognized in past educational activities, and in the adjustments made by individual farm families to changes in methods of farming and standards of living.

The idea of farm reorganization has always been implicit in farm management. One of the first extension activities to grow out of the earliest farm surveys was the return to the farmer of his individual farm records along with comparative tables, so that he could compare the various factors relating to organization and efficiency for his own farm with those of his neighbor and with an average of the best and poorest farms in the survey.

Recently we had occasion to reexamine some of the work done 32 years ago, also to review notes taken in Dr. G. F. Warren's courses in farm management shortly after World War I. The whole idea of individual farm reorganization was essentially the objective of the

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type of study which included all the farms of a given area regardless of the kind of farm. Each county agent appointed in 1914 and in the earlier years of extension work was given a simple farm organization blank, with the suggestion that it be used as a basis for getting acquainted with farmers and for developing an extension program for his county.

Dr. C. B. Smith says that he anticipated at the time of the nation-wide inauguration of cooperative extension work, in 1914, following passage of the Smith-Lever Act, that farm management would be a basic, underlying activity with county agents. We recall that, in about 1915 or 1916, an extension director said he expected the county agents in his State to give one-third of their time to farm management extension work.

It is not necessary, in speaking before this group, to review in detail the history of extension programs in farm management. If we did, there would pass in review the whole development of farm management surveys; of farm accounting and the detailed cost accounting routes; the development of farm management associations in Illinois, Kansas, Iowa, Minnesota, and more recently in Missouri and Wisconsin.

These steps all were in the direction of replanning, or of making adjustments in, farm organization and operation as a result of outlook and changes in farm practices. In varying degrees emphasis has always been placed by the Extension Service on individual farm business records and on accounts and analysis of those records for the past year. This has been done in terms of projected conditions in agriculture for the coming year or years. In most States extension meetings have been held at which county agents and extension specialists in farm management and other fields worked with farm families in interpreting their last year's results and in looking forward to the next years outlook. At these meetings, budgets were made out for the operation of farms for the coming year, including modifications of practices to improve efficiency, production and income.

The point we are making is that the use of techniques in one form or another in connection with planning future operations of farms has been going on ever since cooperative extension work was organized. The great problem and difficulty has been the small percentage of farmers reached with individual assistance. It has always been argued, however, that all this activity had a significance far beyond the farms assisted in that it projected its influence into the extension

programs of the county as these reached the larger body of farmers.

An important conception in extension work today, and particularly as it relates to the future, is the idea of growth and development in individual skills, which affects production practices and economic organization, including business management and farm management and all that has to do with the farm family's work and living. Education is a life process and individual farmers, homemakers, and farm families are changing and adjusting as the methods of farming and living change. Education is cumulative in its effect. As more and more of our adult operating farmers and farm homemakers come from the ranks of 4-H Club work; as more and more of them are graduates in high school vocational agriculture and home economics; as an increasing number of college-trained graduates take up farming on their ancestral farms; as the schooling level of all rural people gradually rises from the U. S. eighth grade average at which it was in 1940; the thing that we might call the pattern of thinking among farm people grows and changes. These ideas change just as much as the ways of farming themselves change. We are no longer in the horse and buggy age. That applies to the managerial side of homemaking, as well as to farm operation.

Farm men and women are growing out of the pioneer stage of extension educational work. What were some of the characteristics of the pioneer stage? As we see it, those characteristics were thinking in terms of problems arising with individual farm practices. In contrast, the thinking today concerns the farm and home as a whole. *The manner in which the most economical practices can be used to give the largest net returns to the individual farmer and his family, in relation to the particular area of land, and economic conditions under which he operates, is today's criterion.*

Individual farm and home planning represents to us a stage in the growth and development of farm people in which farm people themselves look at their farms and homes as a whole and plan for the future accordingly. This is the development of a trend rather than a brand new invention. It raises administrative questions for the Cooperative Extension Service, in the county, on the land-grant college campus, and in the Department of Agriculture. Let us look briefly at how these trends have been developing.

Individual farm and home planning is not the invention of any individual, any particular organization, or any State extension service. It can be compared to a river flowing out of a watershed.

The stream itself is made up of the contributions from numerous individual tributaries which find their way up to "the divide." The stream, as it now flows into the educational resources and services available for $6\frac{1}{2}$ million farm homes and families, is no small stream. Let us take a brief aerial view of some of the main tributaries which make up the total stream.

Perhaps the main thread itself is the development of the wide and varied activities going on in the field of farm management for many years past. We have discussed these briefly—surveys; individual farm cost routes; farm records and accounts; farm budgeting; farm management associations, both private and public.

Another tributary follows developments in farm credit. Credit practices have changed from credit being based wholly upon individual integrity and ample collateral security, to credit being considered as a tool. Wise use of credit is another important factor in successful farming. To a very large degree, both cooperative and private farm-lending agencies now require, in connection with the application for loans, (1) inventories with their statements of net worth, and (2) farm plans which show how the credit is to be used and how it will increase production so as to pay for itself and be of service to the individual farmer and to society. We are told that loans which are now being made by the Production Credit Association for production purposes, average eight transactions before the loan is finally repaid. The Farm Credit Administration assists over 200,000 farm families a year in estimating and budgeting their income and expenses, including the family living budget. This use of budgeting, and what is essentially individual farm planning in relation to the use of credit, is of itself of great importance.

The Farmers Home Administration and its predecessor, the Farm Security Administration made basic use of this principle. For ten years this agency has developed an individual farm and home plan for use with each rehabilitation loan, and with each Bankhead-Jones tenant-purchaser farm agreement. The farm and home plan has been a fundamental part of this credit transaction. The Farmers Home Administration estimates that farm and home plans have been made for most of the 893,000 operating loans. In addition farm and home plans have been made for about 41,000 tenants and croppers under the Bankhead-Jones Tenant Purchase Act.

At the beginning of the administration of the AAA Act of 1933, and further developed through the Conservation and Domestic

Allotment Act of 1936, with its further amendments, a series of transactions was involved with the individual farm cooperator in the organization and management of his farm. In essence a farm plan is required in which balance is maintained between various soil conserving and crop adjusting elements which are injected into the plan for the coming year. For 13 years the majority of American farmers have participated in a particular form of individual planning with reference to their farm and crop adjustment on their farms. The Triple-A reports 3 million farms participating in the agricultural conservation program. The basis of their sign-up is the conservation farming plan.

As a result of the widespread influence in soil and water conservation, soil conservation districts have been organized in a large majority of counties in the United States. Soil and water conservation, however, is an objective which is closely related to systems of farming. It was soon discovered that soil could not be conserved by one or two practices alone. It involved the whole system of farming and organization on a district and county-wide basis. It was but natural, then, that the Soil Conservation Service should develop individual farm plans for soil and water conservation. It is estimated that, since the work began, plans for soil and water conservation by specialized technicians have been developed on 502,865 farms.

Important changes have been made whereby the income tax base has been materially lowered. Practically all commercial family farmers now have income taxes to pay. This requires records and accounts and a summarization of receipts and expenses, and financial operations of the farm for the current year. We are informed that 3,000,000 farmers now pay income taxes and many more are required to file returns. This is another step in the development that requires the farmer to look at his operations from an over-all point of view.

Another very important tributary in the farm and home planning stream is the TVA. Since the inception of the TVA a program has been carried out through the Extension Service and the land-grant colleges, principally in the Tennessee Valley watershed, which dealt with soil and water conservation adjustments, land use and the use of phosphates and nitrogenous fertilizers in relation to both soil and water conservation and farm income. A policy has been adopted whereby assistant county agents were made available with TVA funds. These assistant county agents work with individual

farmers in the problems of farm adjustment and reorganization. Most of the farm plans were to be developed over a five-year period and become demonstrations. Today the total number of Extension-TVA unit demonstration farms plus the area demonstration farms amounts to 38,890. The total acreage in demonstration farms amounts to 5,299,544. Many of the demonstrations have been in existence 10 years; they have been very successful and are exerting a wide influence on neighboring farms.

Time does not permit my discussing the splendid work which is being done by private farm management services, who render such services on a fee basis to farmers and land owners.

A very important service in individual farm planning grows out of the farm management associations in those States which are experimenting and developing with associations as a part of the research or extension program. Records in the extension office indicate 23 associations with 3,733 members in the six States of Illinois, Iowa, Minnesota, Kansas, Missouri, and Wisconsin.

Another type along the same lines has been called extension farm unit demonstration. This work is progressing in good shape, particularly in many of the Southern States.

Summarizing the results of all of these approaches, the Cooperative Extension Service in 1945 reported that 168,293 farmers were assisted in developing farm plans and 52,092 farm families were assisted in developing farm and home plans.

"In 1940-41 the State AAA Committee in Alabama together with other action and service agencies and the Extension Service in Alabama, started an experiment dealing with what they called the Alabama plan. The objective was a single farm plan—a master plan developed by farm families. All agencies, both State and local, were encouraged to assist with these plans and to use them as a basis for their operations. Similar attempts in this direction were being made in a few of the experimental counties developed out of the land-use planning activities based on the Mount Weather Agreement. The emergencies involved in the national defense and the wartime programs caused these experimental attempts to be temporarily set aside."

Several States have continued farm and home planning assistance during the war period. Missouri, for example, is one of these States. One of the significant developments in Missouri has been the development of what they call a method of administrative procedure whereby the various subject-matter specialists, the ex-

tension farm management people, and the county extension people are all organized into a coordinated unit to assist individual farm families in the development of their own plan for their farm and home.

Developments in the field of home management and home economics have to quite a degree paralleled the developments on the operational side of farming. As farm income becomes more stable and increases, the standard of living rises. Higher standards of living mean improvements in the home and around the farmstead. They mean labor-saving conveniences in the home; running water; rural electrification; planning and budgeting living expenses within the range of income, and allowing for the proper education of the children. Planning use of income to bring about higher standards of living in terms of goals and desirable aims in life is of equal importance to the planning of the farm operation as such. Home management people speak of a work block, as well as an income block, in retarding the growth and development of the family. Many home makers, because of lack of home conveniences and home planning, are blocked in their development by overwork and fatigue as well as by lack of income.

This work block, as a whole, causes all of us in Extension to look to and check the adoption of approved practices by individual farmers and their families. Approved practices as developed by scientific research are changing all the time. We can't spend \$50,000,000 in agricultural research without having great changes in agriculture as far as farm home practices are concerned.

The personality of farmers and their families in relation to changing habits and modes of doing things varies tremendously. There is a lag between the practices recommended by science in the research laboratory and the practices used by farmers as a matter of habit on their farms. A good example of this is set forth in Assistant Director Crosby's paper referred to earlier. After 20 years of intensive extension activity, only 4 of the 46 farmers in the Carroll County, Mo., Farm Management Association, were practicing all of the steps required in the control of intestinal parasites in hogs. Another example is the following:

The representative of the Cooperative Milk Producers' Association in one of the important eastern milksheds told us that he thought 75 percent of the dairy farms in his milkshed required important farm management and farm organization changes taking into account such matters as pasture management; forage crop

production; dairy cow sanitation; dairy cow disease control and quick milking methods to bring members of the cooperative up to an efficiency level whereby they could more satisfactorily compete with other areas.

Extension administrators and extension farm economists are giving a great deal of thought to the problems that are presented by the growth of interest in individual farm and home planning among farm people. For instance, Director Crocheron, in California, has advocated for a long time that there be an assistant county agent in each county devoting his full time to economic and farm management matters.


A conference of farm management research and extension people from the Midwest was held this fall at Madison, Wis. The conference considered among other things in the farm management field the problems of the development of an effective educational approach to individual farm and home planning. This conference was sponsored and supported by the Farm Foundation of Chicago of which former Director of Extension Frank Peck of Minnesota is the managing director.

Summary

In summary, we have pointed out the historical development of farm management and its relationship in carrying out the intents and purposes of cooperative extension work. We have outlined various approaches being made to the broad field of individual farm and home planning. We have pointed to the increasing trend toward individual farm and home planning as a result of great advances in farm technology and the growth and development of farm people themselves through education, and through making operational changes adapted to changing conditions. This means an enlarged challenge and opportunity to both the research and educational facilities of the land-grant colleges and the Department of Agriculture. Ways should be developed whereby farm people can be given the information and assistance they need in doing a better job of developing and carrying out their farm and home plans. The concept of individual farm and home planning must always be one of the planning being done by farm people themselves. To this end the farm management profession can make a real contribution. The plans of work that are coming to us from State extension services indicate a deep and genuine appreciation of the problem on the part of the extension directors and the extension staffs.

RESEARCH NEEDED IN ECONOMICS FOR FARM AND HOME PLANNING*

GEORGE W. WESTCOTT

Massachusetts State College 

I

THE man whose principal source of income is obtained through the operation of a farm is engaged in a business which represents one of the most complicated types of productive enterprise involving all of the principles of production organization. Farm planning may be considered as the continuous process of organizing reorganizing and managing the farm from day to day, week to week, month to month, year to year and even from one decade to another in order to adjust to and meet the changing conditions of a dynamic world. There is always a conflict between the individual business or firm, which, in the short run, tends to remain relatively static and inflexible, and the shifting economic environment of the outside world. The farmer through management or planning is continuously at work reconciling these conflicts. It may be said that the marginal farmer is one who does not make a change until he is forced to do so. Progress comes about through innovation; and innovation originates through management and emerges as a part of the farm plan. Every farmer does more or less planning. It cannot be avoided. Decisions must be made. The planning process may be very informal and oftentimes, no doubt, involves little or no rationalization.

The rationale of formalized farm planning such as we have in mind must be based on the entire field of subjective and objective knowledge which pertains to the art or the science of farming. That is a very broad field we will all agree. And then if we broaden the farm planning process to include home planning, we must expand the field to include practically the whole universe of knowledge since we are not only confronted with applying knowledge to the task of making a living but also to the mundane affairs associated with living itself.

It may be contended that farm planning and home planning are logically two separate functions with different objectives; that the

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objective of farm planning is to optimize the income of the farm and the objective of home planning is to optimize the living from a given income. While it is outside the scope of this paper to labor this point, let us accept the tenet, that the farm and family do exist and function together as a family unit as well as a business unit. To try to separate artificially something which is naturally integrated may lead to more unsound conclusions than if we consider the farm family unit as a whole.

That is not to say that the production and consumption functions should be confused. On the other hand, each does compete for the time of the various members of the family and each competes for the returns from the farm business, and because of these joint relationships let us accept the desirability of the principle of joint planning of the farm and home.

These statements lead to the following pertinent points concerning research needs for farm and home planning:

1. Farm and home planning calls for more of practically *all* of the kinds of information which is being developed currently through research in the fields of consumption economics and agricultural economics.

2. Many of the conclusions reached as a result of research have not been presented in a form which can be utilized by the farmer or the homemaker. Research work should be oriented to develop organized information which will be helpful in reaching decisions as to what kind, how much, which methods, and when.

3. The answers to a large segment of farm and home management questions are basically dependent upon physical relations between inputs and outputs. Finally, however, these physical relations must be interpreted in terms of their social and economic implications. This calls for greater cooperation between the natural scientists, engineers, and social scientists in organizing our programs of research in such a manner that when the physical results are interpreted economically they will present complete ranges and arrays from which the farmer or homemaker can develop plans to fit his own resources.

4. Finally there is need for research on planning techniques per se. Such agencies as the Soil Conservation Service, the Farmer's Home Administration, the Tennessee Valley Authority, and the Extension Service have made advancements in the techniques of farm and home planning. But if some type of formalized planning

is to become widespread in its use, there will have to be greater refinements and improvements in the generally accepted budgetary approach.

II

Farm and home planning calls for decisions which must be based not only upon the physical results due to the application of one productive agent to another or balancing the physical qualities of one consumption factor against another, but upon the trends in the external social and economic environmental factors. For example, future plans must be tempered by probable trends in tax rates and policies, transportation rates, wage rates, interest rates, and of course, the prices of alternative outputs and inputs.

Every farmer should be carefully and continuously advised concerning the developments in his competing areas. He should be familiar with the competitive products and where they are coming from and the markets they are moving to. He should be familiar with the producers' prices and market prices in his and the other areas. He should be familiar with the developments in marketing methods that are taking place in each area; the developments in transportation methods and costs; and the developments in production methods in competing areas and their effect upon competition. He should be familiar with the trends in demand for farm products, and the effect of price and consumer income on demand. He should be familiar with consumer preferences with respect to varieties, quality, and packaging. This field of economics will be readily recognized as farm outlook information which must be continually fortified with a strong research program which calls for the fullest cooperation between the State Experiment Stations, the United States Department of Agriculture and other research agencies in the field of agriculture.

Every farm family should be carefully and continuously advised of the most advanced research on the economics of health maintenance, its importance as expressed in increased productivity and the avoidance of costly illness in later years. Farm families should be familiar with the economics of education and its value as expressed in increased productivity in the long run. They should be familiar with the economic and social aspects of saving and social security. They should be familiar with the economic and social values of the community approach to improved schools, recreation, transportation, public safety and the like.

And finally in the general field of agricultural economics and rural social research there is the problem of competition between the farm and home for the farm family's time and the returns from the farm business. Too little attention has been given to this area in the past. Let us consider the problem of farm income. It may be used (1) to meet current farm expenditures; (2) it may be used to meet current living expenses; (3) it may be plowed back into the business in the form of increased inventories of materials, livestock, equipment, buildings or land; (4) it may be used to reduce farm indebtedness; (5) it may be used for durable goods for farm family living, such as housing, automobiles, or household equipment; (6) it may be "invested" in health, education, or recreation, or (7) it may go into non-farm savings and security plans.

These choices pose problems which have received too little attention on the part of rural socio-economic workers. Farmers have always valued farm ownership so high as to constitute a high priority on income even at the expense of family health, housing, and education. Increasing efficiency by means of mechanization calls for more capital per worker. Excess farm population should move to the city as efficiency increases and less labor is needed on the farms. But this migration takes farm capital with it. Is it feasible to develop a broader farm credit policy which would recognize working capital in the form of livestock and machinery as security more than is the case today? If so, this would lessen the competition between farm and home for farm returns and make possible more rational planning on the part of the farm family especially in the earlier years of the family cycle when this competition is most severe.

III

The farmer has to make decisions continually concerning what and how much to produce, what farm practices to follow, i.e. rates of feeding, rates of seeding, rates of fertilization, what varieties to use, how often to spray, and so on. Such decisions have to be based on information which is basically dependent on the biological processes. The farmer also has to decide how he will carry on these productive processes. Will he use hand milking or machine milking? Will he pick corn by hand or machine? Will he use horsepower or machine power? Will he use a hayloader, or a hay baler?, or a field hay chopper?

The farmer makes these decisions by assuming future prices for the inputs and outputs and assuming physical rates of inputs and outputs and then (1) arriving at what he expects will be the margin, i.e. the point where additional marginal returns will just equal the additional marginal costs and (2) by comparing the costs and returns when alternative methods or outputs are being determined.

Likewise the home manager needs comparative data on the performance of foods, textiles, household supplies, and equipment in order that she may determine more wisely her expenditures according to the equimarginal principle.

How adequate are our present data which can be used as a basis for farm and home management? Much work has been done in the field of consumer economics but recent attempts to compile handbooks for home planning reveal that experimental data in usable form is too sketchy to meet this need. Several states, before the War issued excellent handbooks and instructions for farm planning,¹ but these leave much to be desired. Although hundreds of farm management studies have been made and published and vast experimental programs have been conducted in the physical and biological sciences, there are still many voids in the information *which is available to the farmer* and which can be applied by him in deciding the multitudinous questions of management which he faces.

Input data for use in organizing and operating a farm need to be assembled and put in readily available form for individual farmer usage. They need to be adjusted constantly for changes in technology. They need to be expressed in terms of other inputs such as per acre, per cow, and the like rather than on a per-unit-of-product (output) basis. Input data for such things as fertilizers and feeds need to be available in the form of curves showing the range of inputs with the accompanying range of outputs. In other words, they need to show how outputs vary with varying amounts of inputs. Farmers need information in this form if it is to be useful in answering their day-to-day questions. It is surprisingly difficult

¹ C. O. May, *Analyzing and Planning the Farm Business*, Extension Service, Michigan State College. D. B. Ibach, *Re-planning Missouri Farms*, Missouri Circular 375, 1938. P. A. Eke, *Planning the Farm Business for the Year Ahead*, Idaho Bull. 188, 1941. Division of Farm Management, *Taking Inventory and Planning the Farm Business for Next Year*, Indiana Bull. 229, 1940. H. C. Holmes, *Planning the Farm Layout and Cropping System*, Tennessee Publication 245, 1940. S. B. Cleland and W. A. Peters, *Farm Planning*, Minnesota Pamphlets 43-50, 1940.

to assemble such information in adequate form from the results of past experimental work or from the past farm management studies of actual farms. Furthermore, physical efficiency and capacity should be determined and redetermined continuously to show changing behavior under new and changing production techniques.

At the suggestion of Dr. J. D. Black, Dr. Frank Parker of the Bureau of Plant Industry, Soils, and Agricultural Engineering, made a Nation-wide canvass of the literature in 1945 to obtain experimental data by which input-output curves could be constructed for the use of fertilizer. From all of the available data he was able to find only 8 or 10 studies which were conducted in such a manner that curves could be constructed from them, even over short ranges. One of the outstanding studies of this group presented data from which a curve could be constructed over a short range for the fertilization of potatoes in Aroostook County, Maine.² However, this was applicable for only one fertilizer formula, on one soil type with one variety, under one set of moisture conditions and one type of management. These results are already out of date for they are no longer using the fertilizer formula observed at that time and furthermore, the use of DDT which became widespread in usage in 1946 would render obsolete all previous experimental evidence for it promises to change the efficiency and capacity of the potato plant markedly. This vividly demonstrates the need for constant investigation on the principal varieties with the important fertilizers on the major soil types as a minimum program of experimentation properly organized so that several input-output relationships can be determined instead of the usual single relationship.

There is a similar lack of information in the field of livestock feeding. The Jensen-Woodward project was an excellent beginning in the field of dairy feeding but work of this type should be continued in order to observe the effect of changing techniques and cover a wider variety of differences such as quality of cows, roughage feeds, various types of pasture management and time of freshening.

In the field of poultry management there have been no feeding trials such as the Jensen-Woodward trials for dairy feeding.

Survey studies of labor and equipment performance should be summarized as *arrays* rather than as averages. The individual farmer will then be less inclined to accept the average results as

² Joseph A. Chucka, Arthur Hawkins, and Bailey E. Brown, "Potato Fertilization—Rotation Studies on Aroostook Farm, 1927-1941," Me. Bull. 414, 1943.

standards of performance. Arrays will arouse the farmer's curiosity regarding performance on his own farm. He can soon find out his own position in the array, and this opens the way for self examination of labor and equipment utilization as basis for improving efficiency. The array enables the farm and home planner to adjust his individual plan in order to attain the combination of efficiencies and capacities of productive agents, which, when combined with the farmer's own managerial efficiency and capacity, will give the greatest return.

Regardless of whether arrays or averages are used, they should come from a group of farms which are similarly organized, even though the group be small. For example, average man-labor or horse-labor inputs for groups of farms, some of which have tractors and some not are of no use whatever in setting up farm plans. The same would be true for a group of farms some of which have hay loaders and some not. Data on average concentrate and silage fed to milk cows in a group of herds consuming concentrates, silage and alfalfa of varying quality are of little value.

There is great need for more case studies of existing examples of efficient farm operations by the innovators. Labor simplification and management studies are yielding information which will enable farm planning to be much more effective. This type of research should command high priority in Experiment Station budgets.

IV

The resistance to formalized farm and home planning may be attributed to many factors among which are the lack of farm production performance information, the lack of stability in farm production, and the lack of stability in farm prices. The latter two factors underlie the lack of stability in farm incomes which tends to create an attitude of futility with respect to formalized planning. The farm homemaker reasons that the family on a stable salaried income can plan much more systematically. Little does the farmer and his family realize, however, that they cannot avoid planning even though it be very informal and short-run.

There is considerable justification for concluding that the rapid improvement in farm technology is tending to stabilize farm production by eliminating the hazards of disease and weather. For example, farm mechanization makes it possible to plant the crops quickly during the "breaks" in spite of a "backward" spring. Im-

proved overhead irrigation tends to eliminate the drought hazard for many of the more intensive crops. Drought resistant strains tend to eliminate the hazards of insufficient moisture. Disease hazards promise to be more effectively controlled through improved techniques and the development of disease resistant strains even though new diseases occasionally appear to try the scientists' wits. A more stable production would tend to make farm prices more stable; however, the stabilization of farm income is a wide-open field challenging present-day research economists.

On the other hand it may be contended that the ever-increasing tempo of the development of new farm techniques will tend to make farm income less stable. New types of crops or new production techniques will change competitive relationships over night thus forcing farmers to "retool" in order to reduce costs or change their lines of production. This is a very real problem which should be considered by the farm credit research worker, in connection with the present-day problem of more adequate credit for farm production facilities. It also presents another problem to the researcher who is working on policies to stabilize farm income. For example, can and should public funds be used to enhance adjustments which are deterred by investment in obsolete equipment?

Progress in the field of farm technology tends to enhance the acceptance of formalized planning as a necessary farm management tool. In fact, technological improvement may force the successful farmer to use planning as another means of scientifically controlling his business as it is realized that profits more and more depend upon an accumulation of very small adjustments more readily discernible by modern methods. In other words, many of the newer techniques tend to make it possible to determine the margins more precisely.

Formalized farm planning must be more widely practiced if the farmer and his family are to realize fully the advantages being made available to him by the modern scientist. The economic research worker must aid by cooperating with the natural scientist and the engineer in planning and marshalling performance data continuously into usable form for the farmer. And he must cooperate with those agencies who are working with farmers on the farms, in improving our budgetary techniques to the point where they will be generally accepted as an integral tool in the farm management kit.

THE NATURAL SCIENCES AND FARM PLANNING*

CHARLES E. KELLOGG
U. S. Department of Agriculture

ON THE ordinary successful farm in America nearly every practice has been changed several times in the past 50 years as a direct result of the application of science. In previous centuries the arts of agriculture had developed slowly through trial-and-error; but with the growth of modern science efficiency of farm production has been increasing at an accelerated rate. The tempo of change, the acceleration, is still increasing.

Even so, the lag in time between the development of new knowledge and new techniques through research and their use by farmers generally is far too great. On thousands of farms in the United States the process is pitifully slow. This is especially true of those practices that require substantial changes in the whole farming system if their benefits are to be realized. The use of hybrid seed corn spread rapidly because little change was required in the farming system. Other equally significant advances, like new methods of pasture management and new legume crops, have come very slowly into use, because many farmers cannot see how they can be fitted into their farming systems.

Thus science can have the effect of widening the gap between the "old-style" farmer and the progressive manager who uses the latest techniques developed through scientific research. We are all familiar with what has happened in dairying, for example. Those farmers who have worked into their systems the latest methods of feed production, of animal breeding, of animal feeding, and of disease control have enormously increased their efficiency in recent years. Many others are little more efficient in milk production than their grandfathers were. An even greater gap may be found among cotton farms. Yet it is most often on these less efficient farms that we find the serious problems of soil depletion, rural health, and nutrition.

While recognizing that perhaps this lag could be overcome by some drastic change in our pattern of farming, I've chosen to assume that we generally favor family farms of moderate size; that management decisions will be made by individual farm families;

* A paper presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

and that we are primarily concerned with helping these families get the information required for their decisions.

The central problem concerning us here is the matter of making decisions within the farm unit. At the moment, I shall consider those made within farm boundaries and not discuss the great number of important social and economic factors outside of farm boundaries that influence them. Decisions in the farm business need to be guided by principles arising from research in both the natural and social sciences. A knowledge of yield potentialities is not enough, of course, to arrive at a decision with respect to the management of a particular area of soil—some actual field. Costs, prices, labor requirements, and the like must be considered. The decision will also be influenced by the relation of this one field to other enterprises on the farm.

Agricultural scientists have always felt a heavy responsibility to furnish farmers with the relevant facts about farming, as the thousands of excellent bulletins published by our Land-Grant Colleges and the Department bear testimony. But we have not generally appreciated the importance of having our recommendations set within a clear framework, easily understood by the farmer. To make use of the individual techniques recommended, many undefined and unexplained shifts in the farm business are assumed. We have been criticized that our research and extension programs are directed primarily toward the more successful farmers. I believe this to be untrue. I know of no evidence that responsible agricultural scientists direct their research toward any special class of farmers. But I do believe that this is true: The successful farmers—the ones who are good managers—have been the ones who could make most use of our data, ideas, and recommendations *in the way we have presented them*. If we are going to reach the thousands of small farmers, we shall need to present our material differently. We shall need to present it in ways that they can understand it and use it. Now we could go too far in this direction. It is the job of agricultural scientists to give farmers information in ways they can understand it and to help them use science in ways that will increase their confidence in their own ability. *It is not one of doing the job of farming for the farmer*. If he is to be a free and responsible citizen, he must make his own decisions. Our job is to help him prepare for those decisions, and definitely not one of making them for him or of reducing his responsibility.

As the problems of agriculture have become broader in scope and as science has become increasingly specialized, the problem of integration in terms of farming systems has become more acute. At the same time, farming itself has become more specialized. We have more kinds of farms now than we had in former years. That is, there are more optimum combinations of production factors to be dealt with.

The analysis of farming systems and their definition has been traditionally an important aspect of agricultural economics. Sometimes it has been done cooperatively with the natural scientists and sometimes not. Many in the natural sciences have deplored the tendency of farm economists to base their studies on historical trends rather than upon potentialities. We often think that agricultural economists do too much "averaging." (It is not the average of many wild shots but a well-directed shot that sinks the battleship.) But then, the agricultural economist tells us in the natural sciences that we don't organize our data in ways that he can make use of them in farm budget analyses. Now certainly we shouldn't waste much time or effort in pointing out one another's faults. We must find some method for constructive synthesis of the most recent developments in agricultural science in terms of alternative farming systems. This is a problem for natural scientists and experts in production economics to do jointly. Neither can possibly do it alone. Certainly it goes far beyond agricultural arithmetic.

I should like to outline briefly the general course of scientific research as applied to farm and home planning. I think of it most conveniently in about five rather definite steps. The effectiveness of any one of these steps depends upon efficiency in the other four. If any one is seriously neglected or unnecessarily over-emphasized, there is bound to be waste. Even under the best organization, research takes time. Some lag is inevitable. We should seek to reduce it only to the point consistent with proper scientific methods and sound judgment—not beyond that to careless superficiality.

1. The first step is, of course, research in the basic sciences. This sort of research goes forward in a great many of our universities and other research institutions. The workers are concerned with the fundamental laws in chemistry, physics, biology, economics, and so on. Although perhaps not unmindful of practical uses and implication of their results, their attention is and should be primarily devoted to the discovery, clarification, and perfection of fundamental

scientific laws and principles basic to all invention and application. Since it is not always easy for the layman to appreciate the importance of this activity, it has frequently suffered. Whenever fundamental research declines because of a lack of freedom or a lack of financial support, invention and applied research are not able to go far.

2. The next category of research is that in the applied sciences. Now, of course, most of our sciences have both fundamental and applied aspects. This is true in chemistry, economics, soil science, and most others. And, of course, the applied phase cannot exist apart from the more fundamental one. One could not have agricultural economics without economics, for example. In this category of research, we assume for the moment that the fundamental principles are catholic. We are concerned rather with specific elaborations of these principles and their application, in the agricultural field, to practical problems of agriculture—to the breeding of disease-resistant plants, to supplementing soils with the proper fertilizers, to finding ways to control insects, et cetera. This research is not of a lower category; it is simply of a different category. I should like to stress here, parenthetically, that it is not the field of work that makes a scientist—not whether it is in the social sciences or in the natural sciences, in “pure” science or in applied science—it is whether or not he uses the scientific method competently and honestly.

It is this category of research with which we are most familiar and about which most of our bulletins are written. We have discovered new principles and methods in the laboratory, in the greenhouse, on the experimental plots, on the experimental farms, and through scientific correlation of field observations. The product is necessarily segmented; it is a product of many specialists. Rarely are the results expressed in terms of farming systems.

3. For want of a better name, I shall call the next category, research at the level of the farm unit—research that is conducted on pilot research farms. This category has been sadly neglected. In fact, it has been left largely to chance. Important discoveries and methods often sit on the shelves for years until some enterprising farmer with the ability and with the capital tries them out on a going farm; in other words, until some enterprising farmer does the necessary research at the level of the farm unit to see how these practices can be worked successfully into a system. This usually

means some remodeling, some reshaping. Then too, the final result on one farm is often specific for the soil conditions on that farm and only applicable to like farms.

A few such farms have been established in the United States but not nearly enough. Such research at the level of the farm unit needs to be conducted by teams of workers representing each of the relevant fields of the natural and social sciences. Both natural science and production economics are essentially involved. This research should be conducted on normal going farms directed by tenants or owner-operators under special agreements. The present manager might direct the operations as planned and laid out by the scientists. He would be guaranteed an income at least as great as that he would receive under his own plan. Additional equipment and materials would be provided out of research funds. Some of the things tried on these farms would fail. We would find that even though they looked promising on the experimental plot or in the experimental barn, they weren't successful on an operating farm. Most of them would require modification within themselves and suggest considerable modification of other practices related to them. Such farms should be selected to represent the principal combinations of soil conditions, types of farming, and size of the farms. Unless the definite relation of these farms to others is established by scientific correlation, the results cannot be quickly used or applied generally.¹ The records of the farm should be subject to exhaustive analysis by the research workers.

4. The fourth step in the chain I shall call demonstration at the level of the farm unit, on unit demonstration farms. We need many such farms—enough so that every farmer can easily drive to one of them that is a farm unit about like his, and run by a man about like himself. In addition to being selected to represent the principal combinations of soils, types of farming, and sizes of farms, they should also represent the different kinds of farmers—tenant and owners.

Probably the establishment of such farms is a kind of extension function, or educational function. Whether or not, research scientists must take an active part in their establishment and in the analysis of the results. Again all the relevant agricultural sciences

¹ These suggestions obviously imply a classification of all farms as to combinations of soil types and phases, size, and type-of-farming, and, secondarily, as to tenure.

are involved, as they apply to the whole farm unit. Whereas on the pilot research farms decisions would be made by the group of experts, on these farms the decisions should be made by the operators. Special guidance should be given farmers who volunteer to cooperate in the development of new, alternative, or improved systems of farming that would lead to more balanced income for the farm and to improved productivity and efficiency. Farmers unable or unwilling to follow good husbandry should not be selected, or if selected, should be dropped. Records on these farms should be subject to careful analysis by the research and extension workers. The farm and its records should also be available to other farmers having like problems. Now the small farmer with limited funds and skill can understand the new methods when he sees them in this kind of a framework—on soils like his with capital and skill like his—even when he couldn't possibly do so by simply reading a bulletin. And the demonstration farmer, his neighbors, and the scientists learn as the farming system develops.

Considerable experience has been had with this type of farm, especially in the Tennessee Valley Area, and also in many other places. To me, the results have been exceedingly gratifying. It is not simply because these farmers have introduced new practices rapidly and successfully, but because they have learned how to use technology resulting from science in making their decisions. That is the important thing. It is far more important that farm families develop confidence in their own ability to use science and technology with understanding than to have dramatic before-and-after pictures of immediate results. Although results with unit-demonstration farms have been very good, considering cost, physical results, and the increased self-reliance and ability of farm families, the link between whole farm units and segmented, specialized research is still weak. Pilot research farms are badly needed.

5. The final step, of course, is the application of science on all farms. For this we need the first four steps. We must go beyond bulletins and segmented demonstrations. With adequate demonstration farms, necessary incentives and credit facilities can be made effective. If we are to have a balanced agriculture primarily operated by farm families, these farm families must learn to use modern science. Otherwise, those who don't will drop out in the competition. They will become a kind of agricultural proletariat,

working at tasks set by someone else, possibly by bureaucrats working for managers of large farms or plantations, possibly by bureaucrats working for the government. Whether or not this is desirable is not a scientific question. That shall need to be debated in other terms. I have assumed that we in the United States still believe in the general proposition that it is good to have efficient, responsible farm families operating land units of moderate size. I have tried to outline a way in which modern science might effectively serve that kind of rural pattern.

DISCUSSION

(Discussion led by GUY MILLER and L. G. ALLBAUGH and summarized by LEONARD F. MILLER)

Developing more efficient methods of carrying on farm and home planning appears to be one of the major problems facing the Extension Service if it is to make substantial progress in the use of this educational tool or technique. Many of the planning procedures now being used either cover only certain aspects of the complete planning process or are too detailed and involved to gain wide acceptance by farm people. Devising teaching methods for doing at least a considerable part of the planning in small groups seems essential.

Miller of Ohio reported briefly on their experience with farm and home planning in groups. Farm unit schools, where the various Extension specialists pooled their efforts largely for the benefit of deferred farm workers, provided valuable experience in the group approach for considering the farm as a unit in Extension education. More recently farm and home planning schools were initiated for the benefit of young married couples. These schools consist of a series of 5 or 6 two-hour sessions in which the agricultural and economic trends in the area are first considered as background for developing individual farm and home plans. This is followed by a discussion of the investment needs for the farm and home which in turn is related to the income expectations from the business along with the steps to be taken to increase the prospective income. The final result is not usually the development of detailed individual farm plans but rather that the farmer and his wife do go through the fundamental steps of *thinking through* the basic problems on their farm and what might be done about them.

Experience to date in group planning indicates that perhaps the first requirement for success is a homogeneous group with respect to such factors as age of operator, size and type of farm, and quality of available resources. The group should be small for the best results, particularly if an effort is made to get the plan on paper. The technique of formally enrolling interested farmers in the school appears helpful. Also it seems essential to work

a certain amount of the usual type of Extension instruction into the planning sessions.

From an Extension standpoint the need for reorientation in administrative thinking and procedure was considered important because farm and home planning is not just another Extension project. The problems inherent in making "generalists" out of specialists for the purpose of viewing the farm as a unit without destroying their value as specialists was also recognized. One suggested solution was an organization of the work in such a way that the "generalists" would work directly with the farmers on farm planning and would call upon "specialist" assistance as needed in different fields. This would not lessen the contribution of the specialist, but his program of work would be fitted into the framework of considering the farm as a unit.

The necessity of experimenting on a small scale with different procedures and objectively analyzing and appraising the results of different approaches to farm and home planning was stressed. This would prevent wasted effort in the trial and error stage of development.

Variations in the capacities and motivations of individual farm families was recognized as being an important factor in planning and it was suggested that research and extension could well afford to give more thought to how these human characteristics might be improved rather than assuming that they are fixed and unalterable. The question was raised as to whether it would be possible with good farm planning assistance for a "C" grade farmer to accomplish a "B" grade job of management.

The need for "walking the farm" with the farmer and for obtaining something on the history of the farm as a basis for helping the farmer *think through* his planning problem indicates some of the limitations to conducting farm and home planning on strictly a group basis.

Finally it was recognized that even though many of the typical extension projects could be more effectively carried out in a farm and home planning framework, this approach would not ordinarily include many important aspects of a broad educational program which must extend to problems beyond the farm line fence. The significance of broad economic trends, problems and policies should not be overlooked in conducting a farm and home planning program.

Discussion of the research aspects of farm and home planning reemphasized the point that much of our research, both physical and economic, does not cover a sufficiently wide range of possibilities to be of most service. There is too much concentration on the supposedly normal or typical situation without exploring the potentialities in unusual management methods or combination of productive factors. The result has been that too often farm operators have been ahead of the research worker. In this connection, the suggestion was made for wider use of "roving" research workers, particularly in such fields as agricultural engineering, to search out and appraise the possibilities in unusual equipment and practices developed by enterprising farmers. It was also suggested that instead of giving up on the families who were not "making the grade" in spite of a sound farm and

home planning program, they should be the subject of research aimed directly at determining the reasons for their failure.

The suggestion of using "pilot farms" as a means of developing and refining experimental results before release to farmers received considerable support. It was emphasized that these pilot farms would be comparable with pilot plants now employed by industrial scientists and would in no sense be "model" or "demonstration" farms. Some of the trials would fail for reasons which could only be determined by testing research results on a farm unit scale. If such a test is not made on a pilot plant basis farmers would have to assume the risk of testing the new methods or organization.

The inclination of research workers to make their generalizations too broad merely because satisfactory results have been obtained on an actual farm was recognized as one of the dangers in the pilot farm technique. Pilot farms as well as demonstration farms must be selected carefully to represent definite groups or types of farm situations and problems if they are to be useful. Finally, it was made clear that research needs to be directed toward appraising the cumulative effects on markets and relative prices of a large number of individual farmers adjusting their operations in the same general direction.

SOME ECONOMIC AND SOCIAL IMPLICATIONS OF AGRICULTURAL ADJUSTMENTS IN THE SOUTH*

FRANK J. WELCH

Mississippi State College

AMERICAN agriculture is now and will continue to be for the next few years in the process of transition from a war basis to a peace-time basis. Apart from post-war adjustments in agriculture, there are also significant changes now taking place and that will continue for a long time to come as a part of the evolution of our general agricultural and total economy.

The prospects for significant adjustments in Southern agriculture are even greater than for the country as a whole. These adjustments will by and large grow out of the problems related to the shifting economic position of cotton, the major agricultural enterprise of the region. That the American cotton industry is involved in an epochal world-wide process of economic evolution is generally conceded. Economic movements such as those which are now in progress with respect to cotton eventually will require great adjustments on the part of the older producing countries, such as the United States.

Even though incomes and standards of living are perhaps lower for cotton producers than for any other major production group, an insistence on maintaining this inadequate standard of living may result in a level of production cost and prices that will place American cotton at a distinct disadvantage in the market at home and abroad unless far greater productive efficiency can be attained. In most of the foreign producing countries, which are somewhat less advanced industrially and economically, the production of cotton at less than prevailing prices offers economic advantages not attainable from other alternative crops. If, therefore, the economic and social cost of maintaining the American cotton industry on a favorable competitive economic basis are unacceptable to producers in the United States and to the American people, then extensive adjustments in the agriculture of the South, in the distribution of its population, and in its industry will be inevitable.

* A paper presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 28, 1946.

In addition to the challenge of foreign-grown cotton, synthetic and substitute products produced at home and abroad are becoming formidable competitors to cotton. Up until less than two decades ago, the American cotton producer did not have to worry about domestic market outlets. Even the demand curve for cotton products was regarded as being relatively inelastic up to 6 or 7 million bales of raw cotton. The very sharp increase in synthetic and substitute products and the prospects of still further increases give pointed emphasis to the importance of price even for the domestic market.

The Need for Adjustments

Low per capita productivity. One of the well-remembered statements of the late Wendell Willkie is that only the productive are strong and only the strong are free. The Cotton South has never been efficient in its productive methods as compared with most other major agricultural regions of the nation. The cotton economy was conceived in human slavery and it has lived in economic bondage most if not all the days of its existence. It has been a bondsman to the shifting and uncertain markets round the world; to the vagaries of weather, disease, and insect pest; to an expensive and hazardous credit system; to a one-crop and tenure system that has tended to perpetuate inefficiencies and accelerate the destruction of the soil; and finally to a tariff system that has tended to take tribute from its meager returns for more than a century and a half.

Up until very recent years, cotton has been produced by the same inefficient methods used for centuries. Most of the other major crops of the South require considerably more labor per unit of output than that required in other sections of the country, largely because the whole pattern of agricultural production has been determined or influenced by cotton production.

Low Incomes

Low per capita income. A concomitant of inefficient production is low income. There is no need to parade the usual array of statistics to show that the income and standard of living for the people in the cotton belt are far below that of other regions of the country and for the nation as a whole. For the region to become strong and free, it must increase its productive efficiency, which will improve the per capita income for the region. The shift from an in-

efficient to a relatively efficient level of production, however, will involve significant economic and social adjustments.

Needed Adjustments and Their Implications

Larger farm operating units needed. On the average, farm-operating units in the South are too small for sound farm organization or the application of efficient practices. As an indication of the low man-land ratio, the average crop acreage in the 5 major corn-belt states per farm family of 4 persons was 58 acres in 1940 as compared with 22 acres for the eastern cotton-belt.

With a larger farm unit and with labor-saving practices and equipment, Southern farm operators could produce more of the highest profit crop or crops and at the same time develop soil conservation and soil building practices and a better-balanced system of agriculture.

Recent production adjustment studies indicates that a shift to economic size units in the 16 sub-regions covering the 11 cotton producing states would involve a reduction in the number of farm units of 40 percent as of 1943. Obviously the reduction in the number of farms would not be uniform for all the 16 sub-areas studied. For the Clay Hills of Mississippi, for instance, the reduction would be as much as 63 percent compared with a small increase in the Texas High Plains. On the other hand there would be some compensatory additions to the number of part-time farm families and rural residents in such sub-areas as that of the Piedmont, Limestone Valley, and Flue-Cured Tobacco Areas.

Needed population adjustments in an efficient agriculture. Low per capita incomes in the South result in large measure from low physical productivity per person. In addition to inefficient practices, under-employment is a dominant characteristic on Southern cotton farms. That the development of an efficient agriculture would be accompanied by a reduction from 1943 of 31 percent in farm population in 16 subregions studied. Percentage reduction in farm population varies from 50 percent in the Mississippi Black Belt to 11 percent in the Limestone Valley Sub-region. The High Plains was the only sub-region where a reduction was not indicated. Here mechanization is already general throughout the area and it was thought that a return to normal size of family, compared with 1943, would more than offset a slight reduction in the number of families.

Population Shifts and Production Adjustments

Need for shift in population away from farms. The economic and social implications of such a sharp reduction in the number of farm people are obvious. It indicates the very great desirability of developing ways and means for facilitating the movement of farm people into other occupations. Such a major shift in population emphasizes the very great importance of developing all the natural resources of the South along with the development of an efficient agriculture.

Unless alternative employment opportunities are made available either within the areas where the surplus population now exists or in other areas, all the problems of very low incomes and inadequate institutional services will be accentuated and the attainment of an efficient agriculture greatly retarded.

The population adjustment problem growing out of an efficient agriculture will be greatly complicated by a very high birth rate. For instance, of the native-born population of the United States in 1930, 28,666,000 were born in the 11 Southeast states,¹ of whom 24,100,000 were born in rural areas. But only 17,500,000 were living in rural areas of the Southeast in 1930; 6,600,000 had moved, 3,800,000 leaving the Southeast and 2,900,000 to Southern cities. Since 400,000 came into the region, the net loss by immigration was 3,400,000. The rural Southeast, then exported 2,900,000 to cities in the region and 3,400,000 to other areas, while it continued to grow to such an extent as to create a serious problem to the attainment of an efficient agriculture.

The farm population replacement rate as of 1930 for the Southeastern States was about three times that required for normal replacements. The problem of population adjustment to facilitate the attainment of an efficient agriculture will be one of the most serious and most difficult of all the problems associated with the program of agricultural adjustments.

Need for increased educational training opportunities. Population adjustments mean that alternative employment opportunities must be provided either within the area or without, or more logically in both. In order for these farm persons to be satisfactorily transplanted into other segments of the economy, they will need

¹ Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, and Louisiana.

more educational training, both vocational and general, than many of them are now getting.

Another compelling reason for more educational training is the necessity for better farm organization and farm management practices in an efficient agriculture. Farm operators, in addition to being able to organize and plan, must be able to keep simple records and be able to read and follow instructions with reference to better farm method and improved practices.

Since the agricultural adjustment problem in the cotton belt has national significance, federal aid for educational purposes is imperative if the job is to be well done.

Increased mechanization and improved practices needed. With larger farm operating units and with the pressure of farm population eased, it would be much easier to mechanize Southern agriculture and through better farm organization and practices materially increase per-capita and total production. As an indication of the need for an increase in mechanical equipment, the amount of machinery on Southern farms has just about doubled since 1850, whereas for the country as a whole, it has quadrupled. The introduction of the mechanical cotton picker and the flaming machine provides the most spectacular instances of a shift from hand methods to machine operation, but a shift from half-row to one- or two-row operation is scarcely less significant in areas where the mechanical picker and flaming machine cannot be used on a practical basis. Furthermore, mechanization is moving along many lines in addition to the production and harvesting of cotton. For instance, a recent headline in the Mississippi Experiment Station's *Farm Research* carried the following headline: "Field harvester for silage cuts hand labor costs—enables 4 men to do the work of 12, field to silo at rate of $3\frac{1}{2}$ to 4 tons per hour."

In addition to increased mechanization, there are possibilities of further utilization of all resources and a better balance in the agricultural production pattern. Compared with 1943, it is estimated that the total physical production could be increased under an efficient agriculture by about 54 percent. About one-half of this increase in total productivity would result from an increase in crop yields and livestock production rates, and the rest from more efficient combinations of resources utilized in better-adapted farming systems. With this increase in the volume of production and with a reduction in the number of farm workers,

the estimated per capita increase in production would be $2\frac{1}{2}$ times that in 1943.

Problem Areas Outside of Agriculture

Additional capital requirements. Combinations of productive agents in an efficient agriculture would require substantially larger proportions of capital than is found on most Southern farms at the present time. With low productivity and with low incomes, farmers' accumulation of capital has been at a slow rate. So slow in fact that large amounts of capital, through credit channels, would be necessary if many of the opportunities for improving agriculture are to be realized.

When real estate, livestock, and equipment now on hand are purchased in a community, it merely represents a transfer of capital from one party to another. The real additions to the income and wealth-producing capacity stem from capital used to build soils and buildings, to grow livestock, and to buy new machinery and equipment, thereby raising the level of productive efficiency at which farm resources can be utilized. As to specific area needs: It is estimated that a total investment, assuming 1943 prices, of \$37 to \$48 per acre would be required—depending upon the farming system—to equip an efficient size, fully mechanized farm in the Mississippi Delta. On a cotton-dairy-poultry farm in the Southern Piedmont of North Carolina, the investment would be \$35 per acre, or about the same as on a general farm in the Clay Hill Section of Mississippi. For the Texas Black Prairie Sub-region, it is estimated that 16,000 farmers would need about \$13,000 each if minimum efficient family sized farms were developed. Seventy-two percent, or 210 million dollars, would be for land, buildings and fences, and the balance would be divided about evenly between livestock and equipment. Between one-half and three-fourths would be capital transfers, and the rest would be for the introduction of new capital equipment.

The problem of finding an adequate amount of capital for effective utilization in the reorganization and operation of Southern farms is a vital factor in the attainment of an efficient agriculture. Many farmers will want to "grow into" rather than "buy into" the farming system best adapted to their production situation, which will make easier the financing of an efficient Southern agriculture.

The need for a better balanced area economy. The South basically is

an agricultural section and, as such, is interested in any program which attempts to balance a traditionally low income agriculture with higher-income industry. The South is moving ahead in industrial development at a rate that is encouraging in certain areas, as would be expected, is sporadic and non uniformly dispersed. Most of the Southern States are keenly conscious of the need for more industries to better balance agriculture and many of them have organized programs pointed toward this end.

In addition to the development of new basic industries, there are distinct opportunities to develop community service business establishments which are now badly needed in many small towns and cities. Opportunities run to such small concerns as laundries, frozen food lockers, small slaughter and meat curing plants, dry cleaning establishments, greenhouses, milk pasteurization and ice cream plants, local farmers' markets, and many other types of business service units depending on local situations. Certainly efforts to balance industry with agriculture should include plans to balance community service facilities with local needs.

Attaining an Efficient Southern Agriculture

The barriers to the attainment of an efficient agriculture are implicit in any careful consideration of where we now are as contrasted with where we shall have to be in order to be efficient.

The present-day pattern of small ownership in most of the Southern areas cannot be easily recast. Present and prospective population pressure will be difficult to ease, assuming a high level of national economic activity and regional industrial expansion. Educational and health deficiencies will tend to resist even well-organized attacks. Poorly adapted farming systems and low managerial performance can be expected to improve slowly. Lack of technical skill on the part of farm labor will require concerted attack for improvement, and it will be necessary to plan now an expanded production in accord with efficient and adequate market organization, methods, and practices. The two will have to be developed concurrently which will require careful planning and skill. New credit policies will need to be formulated before a truly favorable environment for needed adjustments on individual farms can be attained.

The pressing problem now and in the future will be to find and apply such methods as will enable production to be continued to the fullest practicable extent while facilitating the making of needed

social and economic adjustments, and minimizing the losses which will result to farm operators from changing types of farming and to farm workers from shifting employment.

The solution of the agricultural adjustment problem in the South will require time and nation-wide adjustments both by farmers and by management and labor in other industries, but for the sake of our national welfare, the problem must be solved.

Agricultural policies and programs for the future must be pointed toward sound adjustments and not palliatives designed to give temporary relief. The regional leaders themselves must assume the responsibility of sound regional planning consistent with national planning goals. A modern nation, it has been pointed out, cannot avoid balancing its total production-consumption budget. This can be done at a low level with a great deal of unemployment, inefficiency, and suffering; or it can be done at a high level with full employment, high efficiency, and a better life for all. Our major goal for the South is that of balancing our production-consumption budget at a high level through a more efficient utilization of our natural and human resources; the attainment of a higher level of living for the great mass of the South's population which in turn will make for a stronger, more prosperous nation.

REVIEW*

FRANK D. BARLOW, JR.
Louisiana State University

I find myself in hearty agreement with the general conclusions of Dr. Welch in his paper. Most agricultural economists would agree, I think, that the basic approach to the improvement of farm incomes in the South is through a more efficient organization and recombination of resources in the region.

The long time dominance of cotton in southern farming systems suggests the nature of the problem that farmers are now faced with in the reorganization and recombination of productive resources. Cotton, as you know, when grown by hand methods is a relatively intensive labor crop with excessive labor peaks during cultivation and hoeing in May and June, and during the harvest season in September and October. When cotton was "King," it was only natural that farms were organized around the production of cotton—either small family operated farms or plantations of multiple family units.

* A review presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 28, 1946.

The first real difficulties appeared when foreign markets were lost to American cotton growers. During the 30's farm incomes received another shock with the declining domestic consumption of cotton due to depressed economic conditions at home. The over-all impact of these unfavorable factors affecting the consumption of American cotton, coupled with the activities of the Agricultural Adjustment Administration resulted in a reduction in acreage from 42.6 million acres annually during the period 1925-29 to 27.8 million acres annually during the period 1935-39 or a reduction in acreage of 35 percent. By 1945 the acreage harvested had declined to less than 18 million acres or a reduction of nearly 59 percent from 1925-29. The acreage reduction, it is true, did not result in proportionate reductions in production. Production declined only 14 percent from 1925-29 to 1935-39 and 41 percent by 1945.

During this decline in the relative importance of cotton in southern agriculture, two significant facts should be observed. First, the crop land released through reduction in cotton acreage was not used for intensive cash crop enterprises to any great extent, but for forage crops, cover crops, pastures and idle crop land. Secondly, the number of farms and the number of workers engaged in agriculture prior to the War did not decline in proportion to the shift from an intensive to an extensive agriculture. Consequently, there was widespread under-employment of human resources in southern agriculture. In other words under-employment is an old problem.

As we appraise the years immediately ahead, we are confronted with far-reaching technological developments and improvements that will dwarf the under-employment of labor resources that resulted from the production adjustments in the past 15 years. In the production of cotton for example, approximately 113 man hours are required to produce an acre of cotton with yields of 311 pounds of lint under old style methods of production. The substitution of mechanical for animal power alone results in a reduction of 17 man hours an acre. Experimental evidence and practical experience indicates the feasibility of mechanizing the cotton harvest, and the mechanization of this operation results in a further reduction of 52 man hours an acre. Flame cultivation is now practical when combined with small amounts of hand labor in hoeing and results in an additional reduction of 13 hours of labor. At the present time, then, the full employment of new mechanical methods results in an over-all reduction in man labor requirements for cotton production from 113 to 31 hours or 82 hours an acre.

With these far-reaching implications in production methods alone, it is evident that tremendous population shifts will be necessary if human resources are to be efficiently employed—regardless of the future scale of cotton production. Even if cotton production were to increase above present levels, under-employment or inefficient utilization of labor would be inescapable unless large numbers of farm people were able to obtain employment outside of agriculture.

During the War non-agricultural employment opportunities were sufficient to drain much of the surplus farm population off southern farms. Adjustments in farming systems and the efficient utilization of resources

that were encouraged by wartime conditions have done much to crystallize the thinking of agricultural leaders and demonstrate to progressive farmers the underlying causes of low incomes in southern agriculture. As Dr. Welch has pointed out in his paper, the low productivity of labor which results in low total production per worker has been the basic cause of low incomes in the South.

The first step in the achievement of an efficient agriculture hinges upon the recombination of human and physical resources as suggested by Dr. Welch. The magnitude of the needed adjustments deserves emphasis because of their far-reaching implications upon the economic and social future of the South. In order to achieve efficient farming systems two out of every five units as of 1943 must be eliminated. This reduction in number of farms is necessary if the remaining farms are to be large enough to achieve economies in production. Now, what will this mean in terms of population shifts? In order to obtain efficient utilization of labor in an efficiently organized agriculture, a reduction of 31 percent in farm population as of 1943 is needed. This means that about one out of every three agricultural workers must find employment elsewhere.

It cannot be denied that the social consequences of shifting one-third of the farm population of the Cotton Belt to non-agricultural employment will be painful and a tremendous task. But it must be done for the sake of improving the levels of living in the South and for the welfare of the Nation as a whole.

REVIEW*

E. L. LANGSFORD

Bureau of Agricultural Economics

Since I am in agreement with Dr. Welch's paper my brief comments will be in the nature of an elaboration on some of the points which he made.

The development of an efficient agriculture in the South involves improvement along four major lines: (1) Enlargement of farms, (2) recombination of enterprises and of the factors of production, (3) better utilization of low grade resources and (4) more effective use and more widespread adoption of improved crop, livestock and woodland practices. Adjustments along these lines are not new. Some farmers have efficient operating units; are using improved production practices and are mechanizing their farming operations at a rapid rate. These adjustments likely will continue irrespective of the kind of cotton policy in operation. They would, however, progress more rapidly under conditions of economic prosperity and with freedom from the rigidities of controls.

A large portion of the farms in the South are too small to permit efficient operation. With a small farm it is necessary for the operator to maximize the crop which returns the highest value per acre even though large amounts of hand labor are required. This often leads to under-utiliza-

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tion of other resources. Mechanization is not practical on small farms as they are not conducive to the fullest use of some improved production practices. All of these tend to keep production and income per worker at low levels.

Increasing the size of the farm leads to greater efficiency in three important ways. It makes practicable the use of motorized equipment; it affords the opportunity for a better combination of enterprises; and it makes possible more effective use of family labor and management. With a larger farm unit and with labor saving practices, the operator can produce more of the high income crops and make better use of other resources because there is sufficient land for the efficient prosecution of other enterprises. All of this leads to higher output and larger income per worker.

In areas, where low grade land represents a high percentage of the total farm land, it would be profitable to utilize these resources more fully for pastures and improved woodlands even though it meant reducing the acreage devoted to the high income crop. This suggests larger farms and a more extensive agriculture. In such areas cotton would be relegated to a minor place or even dropped from some farming systems.

Where it is profitable to mechanize cotton production and harvesting, and where cotton has a relative income advantage over other enterprises, it can be maximized and other enterprises can be combined with it to balance the farming system.

Dr. Welch has stressed the importance of increasing the land-capital-man ratio. He also mentioned the need for improved production practices. The latter may warrant more emphasis. The physical volume of production in the South would be increased materially with a more efficient agriculture. A significant portion of this increase would result from increased crop yields and production per animal which would result from improved production practices.

Improved efficiency, in a literal sense, means getting more out of the resources that are used. Improvement in production practices and their widespread adoption would do much toward increasing incomes and conserving resources. Experimental results indicate that their use could be pushed much farther from the standpoint of intensity of use as well as in their adoption by more farmers.

By and large the use of improved agronomic practices on cotton and the major cash crops has progressed rather far. This is particularly true of practices which are easy to apply. For example, the application of fertilizer per acre of cotton has nearly doubled during the last 20 years. The greatest need is for improvement in forage and pasture crops. Much progress could be made by a wider adoption of the practices which have been proved profitable by the Experiment Stations and by leading farmers. However, additional research pertaining to the development of better forage and pasture crops, and for improved methods of production, is badly needed.

The income producing capacity and conservation of the land resources for the future would both be enhanced with the widespread development of more efficient farming. This eventual attainment would alter the land use pattern substantially. Under conditions of prosperity and no Governmen-

tal production controls or price programs, the total acreage of cropland could be reduced. This change should be accompanied by an increase of about the same amount in permanent pasture and woodland, with the major portion going to pasture. Despite the decrease in total cropland there could be a slight increase in land used for crops and rotation pasture by reducing the amount of cropland now lying idle.

For the most part the land used for crops should be more extensively farmed. The total acreage of intertilled crops could be reduced with a compensating expansion of about the same magnitude for close-growing crops, principally small grains. Sod crops including hay and rotation pasture would be increased.

In keeping with the shifts in land use larger numbers of productive livestock would form an important part of the pattern of an efficient agriculture. Largest percentage increases would occur in beef and dairy cattle. A considerable reduction in work stock numbers will result from increased use of tractors.

By the use of improved production practices yields could be increased some for cotton and materially for feed crops. Production per animal could be increased. Capital requirements and cash outlays would increase materially in an efficient Southern agriculture.

More people, now on farms, would be available for employment in non-agricultural occupations. Considerably fewer people than are now on farms could man an efficient agriculture in the South. If there is not a substantial reduction, some will be underemployed and human resources will be poorly utilized. This emphasizes the importance of developing non-farm employment opportunities and the need for keeping the employment avenues open to Southern farm people who would prefer non-farm employment.

REVIEW*

MAURICE R. COOPER

Bureau of Agricultural Economics

Mr. Chairman, Gentlemen. Although I did not come to Philadelphia expecting to appear on this program, it is a pleasure to do so, even though I am sorry that Dr. Stine could not be here himself.

In general, I agree with the others on the panel, that Dr. Welch has done a good job in presenting some of the findings of the various State committees and the regional committee who have worked so diligently in preparing the report on "Production Adjustments to Improve Farming Opportunities in the South." In view of the extended comments by the other members of the panel, relating specifically to Frank's paper and to other aspects of the above mentioned report, it seems to me, Mr. Chairman, that the greatest contribution I can make to this meeting is to indi-

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cate, a little more than has already been done, the relation of this report to the other reports which have been prepared in connection with the "Study of the Agricultural and Economic Problems of the Cotton Belt."

A good many of those present are familiar with this study, but others are not. It was originally outlined at a conference held at Memphis, Tennessee in May 1945, called at the request of the Agricultural Sub-committee on a Postwar Cotton Program of the U. S. House of Representatives, which is under the chairmanship of the Honorable Stephen Pace of Georgia. Those in attendance include approximately 45 men who represented either agencies or institutions which were developing research programs on the agricultural and economic problems of the Cotton Belt, or agencies which wanted to obtain the results of such programs.

At that meeting, 13 problem fields or projects were outlined, including 4 relating to industrialization of the South. Since the Memphis meeting, the latter 4 have been combined into one, and one other of the original projects (Agricultural Programs and Policies) has not yet been started so that we have thus far had 9 active projects. Reports on each of these projects have been or will, within the next few days, be submitted to the Central Steering Committee for the over-all study which was selected at the Memphis meeting. This committee is now composed of Clarence Dorman, Chairman, Joseph Ackerman, William Rhea Blake, M. J. Funghess, William B. Lambert, Stephen Pace, Theodore Schultz, O. V. Wells, John Van Sickle, Leslie Wheeler, and E. A. Meyer. To serve the Central Steering Committee, the following secretariat was named: Maurice R. Cooper, M. K. Horne, Jr., Frank J. Welch. The 9 reports which have been or are being prepared are:

- I. Production Adjustments to Improve Farming Opportunities in the South
- II. Ginning, Handling, and Marketing of Cotton and Cottonseed
- III. Cotton Goods Production and Distribution Techniques, Costs, and Margins
- IV. Competitive Position of Cotton and Other Materials
- V. Production Studies of Synthetic Fibers and Paper
- VI. Foreign Market Outlets for American Cotton and Cotton Manufactures
- VII. Industrialization and the South
- VIII. Educational Problems in the South
- IX. Health Situation in the South with Recommendations

In addition, it is expected that a general summary of these 9 reports will be prepared and possibly a report relating to Agricultural Programs and Policies. This means that altogether there will be 10 or 11 reports in the over-all study.

The entire study was undertaken for the purpose of providing information that would be helpful in (1) encouraging the maximum efficiency in the production and use of cotton, (2) developing alternative sources of income and employment, particularly through industrialization, (3) raising the levels of health and education in the South, and (4) laying the basis for a balanced, long-range program designed to maximize the use of Southern resources through private enterprise, aided, where necessary, by appropriate Government action.

Since some of the reports have not been received and since some of those

which have reached my office are still preliminary and have not been approved, I am not in a position to indicate the findings contained in these various reports. I might say briefly, however, that insofar as Report VI on "Foreign Market Outlets for American Cotton" is concerned, the tentative conclusions of our committee relating to export prospects are not very optimistic. On the other hand, they are not as pessimistic as some of the comments which have appeared in print during the last year or two.

In view of the importance of industrialization and nonfarm employment opportunities in the South to the production adjustments needed to attain a highly efficient agriculture in the South, it might be desirable to indicate briefly a seven-point program which the committee preparing the report on "Industrialization and the South" has recommended. These are as follows:

1. Provide financial assistance to small business through a loan insurance program to be carried out by private banks.
2. Carry on research and provide for the application of the fruits of research to the practical problems of business enterprises through technical, scientific and management aid.
3. Promote a transportation policy which will: (1) intensify, particularly, the development of the more highly-fabricated and highly-finished industries in the South, (2) make greater use of actual costs on a basis of determining rates, and (3) develop the full potentialities of the most efficient means of transportation in the region.
4. Eliminate monopolistic practices, particularly those which result in restrictions of Southern production, higher prices paid by consumers, or lower prices paid to Southern farmers.
5. Eliminate interstate trade barriers, particularly the barriers on motor trucks, and work for the elimination of the restrictions in other regions on the use of Southern products, such as margarine.
6. Make use of the large surplus war plants in the South through the multiple tenancy plan, renting out the space in such plants to small business, thereby creating diversification in the use of resources and promoting greater industrialization.
7. Maximize the purchasing power of Southern workers and stimulate the demand for the products of Southern industry through adequate minimum wage standards under the Fair Labor Standards Act and through the responsible exercise of collective bargaining.¹

DISCUSSION

CHARLES R. SAYRE

Stoneville, Mississippi

In his discussion Dr. Welch has chosen carefully and well from the wide range of considerations in the general problem of rural improvement. All of us will agree that dealing with the extent to which some of the major adjustments are needed for the development of an efficient agriculture adds substantially to the growing fund of research information for the South.

I should like first to mention some features of Dr. Welch's paper which

¹ A dissenting statement on Wages and Wage Policy is presented in Appendix VII by the Chairman of the Working Committee, Dr. J. V. Van Sickle.

may be made more meaningful through some elaboration. Reference is made frequently to an efficient agriculture in the South without defining it. The concept interpreted literally is an organization of southern agriculture which would provide incomes to farm families consistent with those received by families in other farming areas and in other industries without causing irreparable damage to natural and human resources. Dr. Welch uses an implicit assumption of sustained full employment. He would be among the first to recognize that such an assumption over-simplifies the problem of farm family displacement which may accompany mechanization and other types of technological changes. Something less than full employment with a greatly smoothed out cycle would be much more realistic. Any review of desirable adjustments in the South must be focused in terms of fairly specific time spans, particularly if proposals for aids in their attainment are to be defensible from an economic, social, and political standpoint. Here again I feel certain that Welch would agree that in most phases of his treatment he implicitly assumes a transition period of 10 to 15 years leading into a more flexible farm economy in which changes would be made in the future as economic opportunities appear.

Technological Advancements

Under peacetime conditions technological advancements are likely to be the primary generating force for desirable adjustments in the South. I would like to recast slightly the way in which they have been presented here this morning. First I should like to deal with the factors which influence the rates at which technological advancements are being and will be adopted. The ease with which a change in technology can be fitted into established farming systems and practices is a primary determinant of their rate of adoption. If it is a simple process of changing the plates in the planter boxes as it has been with the shift to hybrid corn in the Corn Belt, then widespread adoption may come about quickly. It will come about quickly if the economic possibilities are of such magnitude that they cannot be ignored by the average or even the below average farmer. Additional simple technological advancements appear to be at hand in the South. Some of the Dixie-bred hybrids, such as Mississippi 5111, await only the production of an adequate seed supply. There are other advancements on the horizon which would also provide simple improvements for a large number of farms. I shall take time to mention only two. One is a perennial sorghum developed at the Mississippi Station from a cross of Johnson grass and sweet sorghum; the other is better adapted soybeans for southern conditions which are being developed in a regional soybean breeding program located at Stoneville. Such improvements can be made on a widespread basis with a ripple of adjustments which will scarcely be noticeable on the individual farm or plantation. These simple changes bring increased returns to the farmers and to each factor of production as long as market gluts are avoided.

The more economy-shaking and complex types of technological advancements, such as the mechanization of cotton production, if it becomes feasible, will be adopted at a much slower rate. They have far greater economic

and social implications. Such features as a high man-land ratio, the slow accumulation of capital, and the circular relationship between low incomes and health deficiencies will delay widespread adoption and will also complicate the efforts to cushion the effects of technological displacements in farming. These complex changes may alter the competitive position and in turn the production pattern and the current structure of capital values. By and large they will be adopted only as they will add to the long-run income flow to the farmer. Many of the complications arise, however, from shifts in the production combinations with substitutions of large amounts of capital for labor. As a result the relative shares going to these two factors of production will be altered substantially. Time does not permit a review of the problems which will be associated with such changes. Dr. Welch has dealt with most of them in a generalized fashion.

Balancing the Approach to Southern Farm Problems

I should like to turn to a set of criteria, stated in question form, to point out the fundamental aspects which must be included if there is to be a balanced approach to farm problems in the South. The correlation of and the maintenance of a balance between the research, education, action, and regulatory programs will be essential if human and physical resources are to be used efficiently in the future. The major considerations for program correlation are outlined here in brief.

- I. Will farm income be increased by
 - A. Improving the farm practices for particular enterprises?
 - B. Recombining the proportions in which land, labor, and capital are used, thereby raising the internal efficiency of the farm?
- II. Will the market position of farm products be improved thereby contributing to the future development of market outlets by:
 - A. Lowering costs on the farm?
 - B. Providing sufficient volume to lower processing and marketing costs?
 - C. Supplying the kinds and quantities of products directly or through manufacturers which the consuming public needs and will buy?
- III. Is an adequate research base available for the main features of a particular program and for its improvement after the initial experiences?
 - A. Are the original experimental results significant?
 - B. Have they given encouraging results when tested on a pilot farm basis?
 - C. Have the prospective economic results been pre-tested by competent and unbiased analysts?
- IV. Will the capacity and the efficiency of human and physical resources be improved?
 - A. Are diet improvement and health measures included?
 - B. Are education and training to develop basic skills adequately provided for through enlarged schools and extension programs

- to permit full utilization of current and future technological advancements?
- C. Will the conservation and development of soil, water, and woodland resources be promoted upon an economically sound basis?
 - V. Will non-farm resources be developed advantageously?
 - A. Are provisions included which will stimulate the use of available power, labor, and natural resources by economically sound industries in southern areas?
 - B. Will aid be provided for the development of the community service enterprises which are so badly needed in many localities?
 - VI. Will increasing amounts of non-farm employment be developed locally for able-bodied people, and will minimum security be provided for the infirm who may be crowded out of agriculture?
 - VII. Are provisions included for single farm development plans around which all federal and state agencies could cooperate with the individual farmer?
 - A. Will the farm-development plans be centered upon farming systems which appeal to the farmer, and will they be well adapted to particular production situations?
 - B. Where the production situation and the farmers' inclinations do not warrant his continuation in agriculture, will his occupational adjustment be facilitated?
 - VIII. Are provisions provided for the progressive development of forward-looking programs of agricultural research from which future improvements can be generated?

For the most part American agriculture has been able to meet the competition from "all comers" without submerging its own level of living through the use of improved technology upon bountiful resources. As the resources decline in inherent productivity and competition intensifies, compensatory gains must be made in technology. This will depend, to a large extent, upon the range of subject matter covered in agricultural research and the intensity with which it can be carried by competent technicians.

THE APPLICATION OF WORK SIMPLIFICATION TECHNIQUES TO MARKETING RESEARCH*

MAX E. BRUNK
University of Florida

THE purpose of this discussion is to show how work simplification techniques may be used in agricultural marketing research. In general, marketing covers the field dealing with those services, the cost of which represents the difference between what the consumer pays and what the farmer gets for his product. Limitation of this discussion to universally recognized direct costs of marketing does not deny the existence of numerous indirect costs. For example, shipping crate construction, ice manufacturing or truck designing are as much a marketing cost as the direct labor involved in packing, handling and distributing a crate of celery. Future marketing research may well involve greater consideration of such indirect costs.

Although many marketing studies are immediately concerned with demand, pricing, and providing new services, a basic problem of agricultural marketing research centers around reducing the costs of given marketing services by increasing efficiency. In contributing to this end, work simplification offers a useful approach.

Up to the present time, the systematic application of work simplification techniques to agricultural marketing problems largely has been confined to a relatively few isolated instances where individual firms, confronted with some particular problem, have called on the services of industrial engineers. The great bulk of marketing research on the Federal and State level has been descriptive in nature, pointing occasionally to some problem deserving analytical treatment. The lack of a well-charted marketing research program has resulted in a continued repetition of the descriptive type of marketing study with little provision made for following up such studies with the next logical step—the analytical approach. Once the researcher has described the marketing process, justified its place in the economy, and made a few suggestions about what ought to be done, he has busied himself with writing up another project, only again to repeat the process.

The descriptive approach is the preliminary step in studying any

* A paper presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 28, 1946.

marketing problem but in itself, as Dr. F. L. Thomsen has so clearly pointed out, it rarely contributes to improving the efficiency of marketing. The descriptive approach represents only the "getting started" stage in marketing research. It is only the "what" of the "what, why and how" of research.

Work simplification, which during the past few years has been applied to farm management, offers a real challenge to the marketing researcher. Much remains to be learned about the techniques of method-analysis as it is applied to work routines, organization of work, equipment and plant layout, but nevertheless the results thus far achieved in industry and farm management indicate that such an approach has an important place in a well integrated agricultural research program. There has been little experience on the Federal and State level in applying work simplification to marketing research. For this reason I am going to draw heavily on personal experience, fully recognizing that the conclusions from a limited experience are subject to correction, expansion and refinement.

Many of the descriptive studies made in marketing have pointed to the need of a detailed investigation of a particular problem, the solution of which would serve to increase the efficiency of marketing. In these same studies there is also a great wealth of basic data as well as descriptive material concerning work methods in common use, plant layout or market arrangement, and the like. These studies, except in some cases where the cobwebs are too thick, offer excellent starting points for applying the techniques of work simplification.

The collection of descriptive data from a number of firms prior to method-analysis is essential for a number of reasons. Such data not only point up problems, but also serve to familiarize the researcher with each problem and its setting in the marketing process. It also serves a valuable purpose in gaining the cooperation of the firm or individual concerned with the problem. It gives the researcher a wider range of ideas than he would have by observing only isolated cases. Such data also are valuable as a basis for formulating improved processes from the better parts of many processes.

My experience in applying work simplification to a marketing problem has been in connection with a study of harvesting and packaging Florida celery. Harvesting is included in this case as a marketing function because it is so closely integrated with packing that a clear line of demarkation cannot be drawn between the two.

In any case, the farmer is little concerned whether harvesting is production or marketing.

When this study was undertaken, only a limited amount of data were available describing the various ways celery was handled in the marketing process. In spite of this, and to the later regret of the researcher, the first efforts in this study were to analyze each job in the process of handling celery from the field to the refrigerator car for one large celery marketing organization. Individual jobs were broken down into the various work elements. Each operation and element was critically examined to determine whether greater efficiency could be obtained by eliminating unnecessary steps, by changing the order of the work, by rearranging equipment, by substituting some device to ease or simplify the work, by alternating the movements of the hands and by numerous other means which soon come as second nature to the researcher in method-analysis.

From these investigations, synthetic job procedures were developed and comparisons were made with the old method. This was done for jobs where it was apparent to the investigator that motion economy principles were being violated. Synthetic job procedure charts, listing each movement and step in the process of performing a job, were compared with job procedure charts which described the existing method.

Next came the task of putting the proposed procedures into operation, and with it came the first realization that insufficient data were available to compare the operations of this firm with those of other firms. Put in a mild way, management was not interested in the proposed procedures.

As a result, a detailed comparative type of study covering a number of celery firms was undertaken. The amount of labor required to perform each function in the process of handling celery was measured and comparisons of the various existing methods were made. From this approach the researcher found certain functions that were "bottle-necks" and in need of intensive study. The study also revealed that no two organizations were using the same method sequence and in many cases no two were performing the same function under a similar work pattern. The over-all labor required by the various organizations for a given unit of output revealed a marked variation, but the variation in labor required to perform specific functions was much greater. The more detailed the breakdown of the work procedure, the greater was the variation in

the use of labor. It was found that every organization studied excelled in one or more functions, so that no one concern was doing every function with the least labor cost. When this comparative study was shown to management, considerable interest was aroused. These facts told management that they *could* make improvements, but the facts did not reveal *how* the improvements could be made. Nevertheless, the comparative study served to establish a close working relationship between the firms studied and the researcher.

In making the comparative study, numerous instances were found where the procedures of work were the same as those developed synthetically in the early study of methods for the one firm. This meant that time and effort had been lost in developing methods already in use.

Use of Descriptive Data to Find Key Problems

From the descriptive data covering a number of firms, the key problems are pointed up and each then becomes an individual project for further investigation. Some key problems may appear to be important at the outset but fade in importance as the descriptive data are analyzed. For example, the harvesting of celery requires a tremendous amount of hand labor. A number of celery growers thought that a great saving of labor could be effected by building a machine to cut the roots and tops. Considerable time, effort and money were spent in developing such a machine. A careful study of the breakdown of harvesting labor would have revealed that such a machine at best could save but a very small proportion of the field labor because the bulk of the field work consisted of handling, packing and transporting cumbersome field crates. It was generally conceded that a loading device would be easier to build than a successful harvester, but there was little interest in it because the big problem *appeared* to be cutting the roots and tops. Actually the loading device would have saved many times more labor than the harvester, but the operations which the loading device would displace were decentralized and more difficult to see without close study.

Work Simplification Approaches

What types of work simplification techniques are useful in contributing to increasing the efficiency of marketing? Some of the approaches are clearly economic, while others lap over into the field

of engineering in varying degrees. This paper is not concerned so much with who should apply these approaches as it is with how they can contribute to reducing marketing costs. It is recognized that the economist, engineer, and production specialist all have an important role. However, in working together each must recognize the limitations of the other and be free to challenge each other's decisions in applying the various types of approaches. These approaches are tentatively set down as follows:

1. Finding effective methods and transplanting them from one firm to another.
2. Use of comparative data to synthesize a new method.
3. Method-analysis to develop an improved method.
4. Method-analysis applied to developing devices.

These four approaches are not applied in any particular order. All are considered before a final solution is offered. In actual practice, all approaches are more or less used simultaneously.

After a marketing problem has been selected for study and the various steps in the marketing process have been discovered and described, the first act in applying work simplification consists of questioning each step to determine why it is or is not essential in the process. Many unnecessary steps can usually be detected, thus making the first contribution in decreasing costs.

Finding effective methods and transplanting them from one firm to another.—Comparative data for a number of firms showing the number of inputs per unit of output, subdivided by individual jobs in the process, is one method of finding ways to improve the overall efficiency of a particular firm's operation. From the comparative data, jobs performed with a minimum of input per unit of output may be found which are adapted to the process of another firm. This approach can usually be worked to the advantage of all firms concerned, because every firm has weak spots. It is dangerous, however, because the most effective method for one firm is not necessarily the most effective method for another. In fact, many awkward methods are used as a result of one firm picking up an idea from another firm and placing it in its process without carefully examining the effect of the new method on other operations. This transplanting of method from one firm to another without examining the effect of the new method on the other steps in the process largely accounts for the fact that some firms in Florida handle each stalk of celery three different times for the purpose of

trimming roots, three times for the purpose of stripping, and two times for the purpose of packing.

From the standpoint of the researcher, comparing the output of specific marketing operations of a number of firms serves a most valuable purpose in securing the cooperation of management. Executives like to think, and often believe, that they are doing each and every job better and with less cost than their competitors. Although there is usually no basis for this belief other than hope and opinion, it is a real obstacle between management and the researcher. Comparative data, showing variations in accomplishment, offer the best method of overcoming this obstacle.

Use of comparative data to synthesize a new method.—The first step in this procedure is to break each process, job, operation or work element¹ into its component parts and determine the effectiveness of each part. Parts are then fitted together in what would appear to be the most effective combination. A third and very important step consists of testing the synthesized method. Testing in turn may suggest a recombination of parts.

Essentially, the approach of this method is creative. The researcher relies on his knowledge of the various methods of performing a particular job. He fits together the better parts of the various methods, incorporating with this his knowledge of the principles of effective work. From this he formulates hypotheses which are then subjected to testing, first on paper, then under working conditions.²

Method-analysis to develop an improved method.—A study of the job of packing celery will illustrate the various levels of method-analysis. This job is broken down into many operations, two of which might be as follows: (1) sizing celery, and (2) placing the stalk in the crate. Each of these operations is then subjected to the tests of a check-list of questions which have been developed by

¹ Each of these terms, "process," "job," "operation" and "work element" represents a level of method-analysis. The process consists of a series of jobs. Thus, a process may be analyzed by breaking it down into its various jobs. Jobs, in turn, consist of a series of operations, and work elements are subdivisions of operations. For purposes of method-analysis, the work element may be divided into its component fundamental motions (therbligs). A description of these levels of method-analysis is given by Lowell S. Hardin and R. M. Carter, in "An Analysis of Work Simplification Research Methods and Results," this JOURNAL, volume XXVIII, No. 1, February 1946.

² An example of the use of this approach is an improved method of stripping celery given on pages 15-16 of Florida Agricultural Experiment Station Bulletin 404, "Celery Harvesting Methods in Florida."

industrial engineers.³ Adaptations of these check-lists have been made by farm management researchers.⁴ Changes may or may not result from this examination. The next step is to break the operation "sizing celery" into its work elements, two of which might be as follows: (1) select stalk, and (2) place stalk on packing table. The second operation listed above, "place stalk in the crate," also may be subdivided into the work elements (1) pick up stalk from packing table, and (2) position stalk in the crate. The operations of "size celery" and "place the stalk in the crate" now consists of four distinct work elements. One worker selected the stalk from the washer chain and placed it on a table, and a second worker took the stalk from the table and placed it in the crate. The operations were then combined so that one person selected the stalk from the washer chain and placed it directly in the crate, thus eliminating two work elements. The savings in labor amounted to about 40 percent. This example is an extremely simple one, yet today about 28 out of 30 celery firms operating in Florida still maintain that it won't work. Because of this belief, approximately 100,000 man-days of labor a year are wasted in handling Florida's celery crop. This is no small item in the marketing margin.

In the above example a job was broken down into operations which were in turn subdivided into work elements. Carrying the analysis a step further, each work element could be broken down into its fundamental motions. The work element of picking the stalk up from the packing table, for example, involves a series of motions. Such motions are usually recorded on 16 m.m. moving picture film for purposes of analysis.

In my experience, and in so far as the various approaches can be segregated, method-analysis to develop an improved method has been the most valuable approach from the standpoint of contributing to improved efficiency. The successful use of this approach relies upon a thorough knowledge of the principles of motion economy, plant layout, work order and organization management. The researcher applies the principles of effective work to the method and to each of the many parts of the job under study either by using a check-list or by applying it subconsciously.

Method-analysis applied to developing devices.—A change in the

³ Barnes, Ralph M., "Motion and Time Study," p. 144, John Wiley and Sons, 1940.

⁴ Mundel, M. E., "Mechanical Engineering," p. 565, August 1943.

method of work frequently necessitates an incidental change in the equipment used either in the immediate procedure or at some other point in the process. The improved method of placing celery in the crate described above made a change in the design of the packing table desirable. In this case, roller skids were set in the surface of the table so that the packer could easily move the filled crate out of the way at the same time an empty crate was being positioned.

Without careful study of the new method and reexamination of the entire process, desirable changes in equipment may be overlooked. A number of years ago the entire celery stalk was marketed so that a 48-inch wide washing and packing chain was required. Ten years ago the industry changed to a 16-inch stalk by cutting off the tops, effectively reducing crate, handling and transportation costs. A large number of new celery packing houses have since been built, but they have all installed 48-inch chains.

Another type of equipment change involves the substitution of devices to replace manual effort. In method-analysis, whether it be breaking the job down into operations, dividing operations into work elements, or breaking work elements into the fundamental motions, steps are frequently encountered which can be expedited, eased, or simplified by substituting a device for either a single motion or series of motions. The operation of closing the lid of packed celery crates was broken down into 15 work elements. Six of these elements were concerned with hammering the ends of the crate into place so the lid would fit over the ends. In this process, considerable physical effort was expended, many of the crates were severely damaged, and some celery bruised. The operation analysis revealed that over half the time involved in closing crates was devoted to these six elements. A holding device was suggested. With the functions of such a device clearly outlined, the problem was taken to an engineer who, in a matter of a few hours, built a crate clamp which not only saved time in closing the crate but eased the job and eliminated the damage to the ends of the crate and the celery.

A third type of equipment change consists of objectively analyzing an existing piece of equipment following somewhat the same procedure used in breaking down a job. In this case each part of the equipment is subjected to questioning. For example, the descriptive study indicated that considerable expense was involved in repairing and replacing field crates, and with the shortage of materials during

the war this became a serious item. Therefore, a study was made of the existing field crate to determine why so many crates were in constant need of repair. The crate had 19 parts and a brief survey indicated certain individual parts were a constant source of trouble. Some of the trouble was caused by a change in work methods in the field, which had been put into operation years previously. However, the greatest weakness rested in the original construction. The application of some of the "common sense" principles of effective work contributed to strengthening the weak parts. As a result, a new field crate was constructed⁵ which had greater strength and required less cost to build.

The Problem of Getting Improved Methods Tested and Adopted

The most difficult step in work simplification is putting the improved method into operation. The potential user not only must be convinced that the old method is not the best, but also he must be in a position and willing to make a change. Assuming the authority and financial position needed to make a change, the tendency of human nature to resent criticism, to resist change and to have little imagination must be overcome if the greatest saving of labor and lower unit costs are to be effected.

It will frequently be found that the firm with the greatest overall efficiency will be the first to take advantage of improved methods. In the Florida study, the firm that required the least amount of labor to harvest and package celery made the greatest improvements during the course of the study.

The effect of a new method on the quality of the product must be under constant consideration. Of course there are all degrees of quality changes both for better and for worse. Many handlers in the marketing process operate on a very narrow percentage margin. This has the effect of greatly limiting their willingness to risk the consumer's reaction to a given quality change. It is certainly a legitimate use of marketing research funds to underwrite the experimental marketing of new or modified products until consumer reaction can be determined. In many instances price and consumer reaction studies need to be made in connection with methods' studies when the quality or character of the product has been altered as a result of change in methods.

⁵ "Celery Harvesting Methods in Florida," Fla. Agr. Expt. Sta. Bul. 404, pp. 24-26.

When the new method involves radical changes in the physical plant, the expense involved in pioneering the change may be prohibitive for any one organization, unless its investment can be protected by maintaining control over the new method. Where such investment cannot be protected, it appears that the expenditure of public funds is justified either to underwrite such experiments or to build "pilot" plants.

Although this paper was based on a limited experience confined to the harvesting and packaging of one product, the techniques of work simplification are applicable to the entire marketing process. Results to date indicate that the work simplification approach enables the researcher to contribute directly, and rather quickly, to increased efficiency in marketing.

WORK SIMPLIFICATION—A JOINT PROBLEM FOR MANAGEMENT, ENGINEERING, AND COMMODITY SPECIALISTS*

IVAN R. BIERLY AND PAUL R. HOFF

Cornell University

THE specialized training that most workers in the several agricultural sciences obtain sometimes makes it difficult for them to gain the necessary perspective to appraise their work objectively. Especially is this true when it comes to finding the proper relationship between workers in a given field and their co-workers in other fields. Perhaps in the earlier days of the development of the agricultural sciences, before such a high degree of specialization was developed, such a perspective was not needed so urgently as at the present time. Now, with more emphasis on the application of results of scientific analysis to farm and other problems, it is important that full advantage be taken of the specialized training and skills of all persons concerned with a given problem. Only in this way is it possible to deal with many problems in the way that they must be met by the farm or other business operator.

This paper is not intended to be an exhaustive treatise on the need for cooperation between the three groups of specialists indicated in the title. It is intended only to summarize some of the conclusions of a management specialist and an engineer after three years of cooperative effort with other subject-matter specialists in work simplification studies of farm jobs. The need for cooperative endeavor in other fields is, however, fully recognized. In fact, it is hoped that these observations may provide not only a logical framework within which work simplification studies may be planned and carried through cooperatively, but also some of the understanding needed for furthering cooperative endeavors in other fields.

Without trying to define the term, for the moment, it appears obvious that work simplification has as its primary objective the easing or shortening of work processes. This is not an end in itself, but simply *one* means of attaining lower unit production costs—the ultimate challenge to management. In appraising the usefulness of work simplification, it is well to keep it in its proper relation to the other means of attaining this desirable end.

* A paper presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 28, 1946.

Speaking rather generally, there are four principal ways of cutting costs. As applied, for purposes of illustration, to farming, these are:

- (1) Increasing production per animal and/or per acre, within economic limits. It is well known that very little additional time is required to care for a cow that produces 10,000 pounds of milk as compared with one that produces only 5,000 pounds, or to grow and harvest 3 tons of hay from an acre of land as compared with one ton. Certainly with the higher production rates, within economic limits, there is a much better chance for a lower cost per unit of product, as well as a lower requirement of labor.
- (2) Increasing the size of the farm business, again within economic limits. Not much additional time is required to do some of the routine jobs for a large-sized unit than a small one. Ordinarily more is accomplished per man on the larger units, with lower unit costs.
- (3) Selecting and combining the most profitable enterprises for each farm. In a given area, certain enterprises ordinarily pay better than others, and in a broad sense, it is more efficient use of labor and of other production resources to produce those things which the natural and economic environment favors the most.
- (4) Finding and making use of all possible ways to save labor, which is and probably will continue for some time to be a high-cost item in this country. In most cases a farm merely provides a job for the operator and his family—and some hired help, if it will return more than its cost. How good the job is depends on the amount of output per man. A saving in labor in the performance of a given job makes time available either for other productive work, for additional leisure. The accomplishment of more productive work by the same labor force usually reduces unit costs and increases net profits. On the other hand, a reduction in the length of the work-day may be very important in many instances in getting and keeping good-quality help in the years ahead. While the three factors listed above have the effect of increasing gross as well as net income, this one aims directly at cutting unit costs. Of course, on some farms, a reduction in labor requirements may be necessary before an expansion can be made in the volume of business.

The point of this outline is simply that so far as individual farm or other business operators are concerned, work simplification provides only one, though a very important one, of several means to lower unit costs. *All* means must be recognized and emphasized in assisting farmers or others in dealing with this problem. In any one situation some other factor than easier and shorter work processes may be of paramount importance.

To the individual who is faced with the problem of cutting unit

costs, it matters little whether suggestions come from management, engineering, commodity specialists, or someone else. If all persons who have an interest in the problem fully understand their place in helping their clients to find the right answers, the cooperative spirit and enthusiasm which such cooperation develops will help to sell the program to many more people than if each individual permits himself only to see and consider those phases of the problem that fall within his rather narrow sphere of training. Worthy of note perhaps is the fact that such fences generally are tolerated only within an academic institution.

With this viewpoint toward the place of work simplification in a well-rounded program aimed at cutting unit costs, we will raise the question, "What is work simplification?" It seems to be in connection with the definition of the field that the basis has arisen for some difference in point of view on the part of management specialists and engineers as to which of these two fields should have the primary responsibility for the development of the field. It is the authors' contention that this should be a joint undertaking, not only of management and engineering specialists, but of these together with the commodity specialists who have an interest in the problem.

Management specialists have frequently defined work simplification in terms of its objectives; namely, and briefly, to ease and shorten work processes to the ends that effort is minimized and unit costs are reduced. In these terms, it would appear that work simplification falls within the province of the "management specialist." It seems reasonable that management be charged with the ultimate responsibility for defining or laying out problems which need attention and study so that the business may function more smoothly and economically. Further, it is a problem of management to choose between alternative methods or cost factors, and to appraise the merits and demerits of the alternatives that are offered. But perhaps we should pause here to note that in managing a business, decisions must also be made on all of the many production, quality, and other problems involved. Not all decisions fall within the usual province of the "management specialist."

Engineering specialists ordinarily view work simplification as a systematic, scientific appraisal of the use of power,¹ tools, and ma-

¹ From an engineering viewpoint, power may be supplied by human, mechanical, or other sources.

materials to do a given job, and classify this work as "methods engineering." In this appraisal, careful studies are made of (1) equipment, (2) arrangement or layout, (3) methods, (4) organization of work, and occasionally of (5) the forms of the raw material and of the finished product. Certainly anyone who has been trained to make a scientific and systematic analysis of work processes, whether he is a management, engineering, commodity specialist, or someone else, can appraise methods and organization of work, and offer some suggestions for consideration. But it seems equally clear that in studies of equipment and arrangement, either the management or commodity specialist would find himself, in most cases, quite inadequately prepared. Especially would this be true if he should attempt the design of new equipment, or a careful check on adjustment or operating efficiency of a piece of equipment, or even more than rather simple changes in the arrangement of the workplace. Not many management or commodity specialists could have designed a milking machine; nor are they much better prepared by training to answer the structural problems involved in rearranging a dairy stable. Certainly the responsibilities involved here are those of an engineer.

Another set of guideposts or standards is needed before the engineering function can be performed. This set of standards must be supplied by the commodity specialist. He can appraise alternatives in terms of the quality of the product that each produces, and can determine whether or not any of the alternatives would have detrimental effects on animals or plants. The management and commodity specialists together can ascertain the proper balance between quality of product, price, and cost per unit to the end that total net returns will be maximized. Then the full team, including management, commodity and engineering specialists, can develop and test alternatives with these facts in mind.

In the definition of these limits, and in testing alternatives, the commodity specialist has a vital interest. A method, organization of work, or change in equipment or arrangement that facilitates the work, promotes its timeliness, and helps to do a better production job, is of just as much interest to him as to the other specialists. Further, as a part of this team, he becomes not only a participant in finding the solution, but in selling the idea of its use as well.

So far, the need for joint assumption of the responsibilities involved in work simplification studies has been outlined in general

terms. Perhaps reference again to the viewpoint which a business manager must take will be the best way to summarize the responsibilities of each in this joint undertaking. In developing and then appraising alternatives, there are three primary questions:

- (1) Is there another method, organization of work, arrangement, or kind of equipment that should be considered? Finding this means of using power and material to do a better job lies largely within the province of the engineer. But this should not be interpreted to preclude management or commodity specialists from questioning existing methods, arrangement, organization of work, or equipment; nor to applying time and motion study techniques in the evaluation of the various alternatives; nor to offering suggestions for improvements in methods and organization of work based on these observations.
- (2) Will the new method, equipment, organization of work or arrangement cut unit costs? Finding the answer to this question appears largely to be within the field of the management specialist. Management specialists are concerned with the organization of resources, and the operation of the business in such manner as to provide the greatest continuous profit over a period of time. Keeping unit costs at a minimum is the greatest challenge. One of the most important responsibilities of management is to appraise the alternatives in terms of labor-saving or cost-cutting opportunity. In fact, in the author's opinion, almost all of the work so far done by management specialists in the field of work simplification falls either in this category, or in the field of helping to find ways to fit previously developed innovations into the business operation. To do these things, time and motion or travel studies, or surveys may be used as a means of obtaining the necessary procedures or measures of results, depending some on the type of problem under consideration.

Every change that results from engineering research has an impact on management, and may require changes in organization or operation. But it is obvious that economic limits cannot well be set unless the physical limits are at the same time determined.

- (3) Will the change maintain the proper quality of the product for use or sale, and/or maintain animals or plants at effective production levels? Neither the engineer in a study of the application of power and materials, nor the management specialist in the appraisal of the change from an economic viewpoint, are fully prepared to answer this question. It is up to the animal husbandry specialist to specify the width of stalls that should be put into a new dairy stable; or the fruit specialist to ascertain the degree of injury in an orchard where a new spraying practice or sprayer is being tried; or to the poultry specialist to ascertain the change in quality that has taken place within an egg.

Finally, and perhaps most elementary of all in an appraisal of

the joint responsibilities of the three specialists in examining work processes is the fact that *the business manager must answer all of these questions at the same time*. The problem of the manager in considering changes is to find that balance or combination between the several factors with which he works that will minimize labor requirements and costs, but still maintain quality and biological productive capacity. The best answer from a strictly engineering viewpoint might be an entirely automatic system; but this might not be the most economical; or it might not result in the necessary quality of product. On the other hand, in view of great economies due to some new device, method, or arrangement, some sacrifice in quality might be justified.

Management, engineering, and commodity specialists can make the largest contribution to the field of work simplification by each developing his own subject matter and relying on the other members of the team for the contributions they can make best. There must, however, be a team in which each person is not only competent in his own field, but ready and willing to appreciate the problems of the other members and to work jointly toward a solution.

Although the experience of the authors has so far been limited to joint research and extension activities with commodity specialists of several problems on farms, they see no reason why this cooperative endeavor should stop short of resident teaching. If the means could be developed for joint consideration of this problem, and others, in the classroom, it is the authors' opinion that the students involved would gain materially. They would gain not only through a more thorough grasp of the subject matter and its application, but perhaps a little more of the perspective that they need to tie together more effectively the many phases of their training program.

EVALUATION OF WORK SIMPLIFICATION RESEARCH AND TEACHING ACTIVITIES*

R. M. CARTER

University of Vermont

UNTIL about the year 1940, research in the field of labor utilization among agricultural economists in the United States, was mainly directed toward the pointing out of factors affecting labor efficiency. This included studies of the relation of the work force on the farm to crop yields, of the number of hours of man labor per cow to profit from the dairy, of truck ownership and labor efficiency, of a farm operator's education and man work units per man, etc. Some consideration was given to size of business, use of machinery, and seasonal variation in labor requirements on different farms. Few of these discoveries, however, were of immediate value to operating farmers, most of whom had completed their formal education, already owned a fixed plant, and were operating on limited capital.

As early as 1911, in Dr. G. F. Warren's pioneer study of farm management in Livingston County, New York, with which we are all familiar, mention was made of the inefficient use of farm labor. "Probably the least understood of all factors which have to do with farming is the proper use of time," to quote Dr. Warren's own words. In spite of this need for a type of research which would bring to light knowledge of ways in which a farmer on his present farm could produce more goods within a given time or could reduce the energy expended in his present production quota, with a few exceptions it has only been during the last 5 years that the research programs of the Land-Grant Colleges of the United States have included studies of body motions and of the comparative time costs of detailed agricultural processes and operations among their projects.

This new interest in the uncovering of the fundamental use of labor was promoted, in a large part, by the efforts of the Farm Work Simplification Laboratory at Purdue University. In 1943 the General Education Board made funds available for use by cooperating institutions in this country for suitable research along these lines. This stimulus, added to an aggravated labor condition brought

* A paper presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 28, 1946.

about by our war economy, directed the attention of many of our agricultural research workers toward studies of more efficient use of time on the farm.

This report is an attempt to summarize the research activities of the Land-Grant Colleges in the United States since 1940, insofar as they apply to or show direct interest in farm work simplification. This has been made possible by the active cooperation of the Directors and Staff members of most of the Land-Grant Colleges in the United States, who sent in to us a statement of their activities along these lines. While work simplification is usually interpreted to mean a study of the motions and an analysis of the processes which are found necessary in carrying on agricultural operations, considerable variation in definition was found from state to state.

Out of the 43 states from which reports were received, 22 reported work simplification projects of some kind as finished or underway (Table 1). Nine of these same states also had some future work simplification projects under consideration. Two states which until now have done no work along this line expect to undertake studies shortly. Apparently nearly half of the agricultural colleges of this country have undertaken work simplification projects, as they have interpreted this term, and about one out of four have some new allied projects under consideration at the moment. This is a very good showing of interest in the field of work simplification, a field in which practically no research at all was being carried on five years ago. It also indicates that this interest is not entirely tied in or identified with our war-time activities, but rather continues to find a place of importance in the research program of our institutions in a post-war era. I think this is as it should be, since in a world in which we hope to make the good things of life more abundant, it is important that the farmers, the people who are most intimately connected with the production of the materials with which we feed and clothe ourselves, should be in a position to produce these goods with the minimum of time and effort.

If the research which is being carried on in work simplification is examined from a geographical standpoint, a larger proportion of the states in the northeastern quarter of the United States are participating than in any other area. To be more specific, all of the Lake states and three out of five Corn Belt states have research underway at present. In the 12 Northeastern states, at least nine are engaged in one or more work simplification studies at present.

On the other hand, in the South only two states, Kentucky and Florida, have reported work simplification studies. Nebraska alone, of the 100th Meridian states, has work underway. This was likewise true of Colorado and Montana in the Mountain states. On the other hand, two of the three Pacific states, Washington and Oregon, have been doing a great deal of work. Undoubtedly there are other studies in states which have not answered our questionnaire, but this information, being unavailable, can not be included at this time.

TABLE 1. WORK SIMPLIFICATION RESEARCH AND TEACHING
IN THE UNITED STATES

Region	States		Research reported	Teaching reported	
	All	Reporting		Special class	With farm manage- ment
			Number		
Northeast	12	12	9		6
Corn belt	5	5	3	1	5
Lake states	3	3	3	1	1
South	11	10	2		4
100th meridian	6	4	1		
Mountain	8	7	2		1
Pacific	3	2	2	1	2
Total	48	43	22	3	19

The teaching of farm work simplification in college classes as a specific subject will be carried on in three states during this school year,—Minnesota, Oregon, and Indiana. Several other states have had special classes in farm work simplification in the past, and may have them again in the future if the demands of the student body so indicate their need. In addition to these special courses, many states give some attention to this subject in their farm management courses. Twenty-two of the 43 reports we received indicated that some time was given to the subject of work simplification within the content of the farm management class. There was no uniformity in the amount of time allotted to this subject, although it seldom exceeded four or five hours. In a number of instances it was reported that only one or two lectures were devoted to the subject.

As to the work simplification projects themselves, the 22 states have 98 projects or sub-projects set up and specifically labeled as work simplification studies (Table 2), completed or underway, or

an average of more than four projects or sub-projects per state. The majority of these studies have been made in connection with the use of labor for crop production, 49 out of the total being directed this way. There are also a number of animal enterprise studies, and

TABLE 2. TYPE OF WORK SIMPLIFICATION RESEARCH STUDIES (PROJECTS AND SUB-PROJECTS) PLANNED, UNDERWAY, OR FINISHED, IN THE UNITED STATES IN 1946

Type of research	Projects	
	Finished or underway	Planned
	Number	
Crops		
Truck Crops	11	1
Hay	11	2
Ensilage	3	2
Fruits	11	1
Tobacco	4	
Potatoes	6	
Sugar beets	2	
Corn	1	
Enterprises (animal)		
Dairy	8	2
Poultry	5	2
Hogs	1	
Beef cattle feeding	1	
Engineering		
Farm machinery and appliances	8	1
Structures	5	4
Home Economics	7	
Interrelationships	6	1
Miscellaneous		
Worker training		1
Improving land	1	
Housing workers	1	
Over-all efficiency	5	1
Handling feed concentrates		2
Poultry processing plants		1
Dairy plant operation		1
Processing beef and pork in frozen food locker plant	1	
Experimental farm		1

several in the field of agricultural engineering. Home Economics departments named several, and there are a few which almost defy classification. Six of the studies listed were studies of interrelationships between the use of labor and output of one kind or another,

and are apparently more in line with the earlier studies in labor efficiency carried on before 1940 than with the analysis of motions and processes which we usually associate in our thinking with work simplification in agriculture.

In addition to these 98 projects which have been finished or are now underway in the United States, there are 23 other projects reported as planned by the Stations which forwarded questionnaires and materials for this study. There was no concentration of attention indicated by a study of the research planned. In general, studies contemplated were a continuation of the type of research which had already been made the subject for investigation by our workers.

In looking over the crops which have been or are to be the subject of investigation in an attempt to simplify their production, it is of interest to note that the U.S.D.A. quarterly "Crops and Markets" lists 35 specific crops in the current report. Of these 35 important crops, only 7 were the subject of investigation from the standpoint of better labor utilization.

Crops and enterprises in the northeastern quarter of the United States are pretty well covered. In the South, studies have included tobacco and vegetable crops, but no attention has been given to cotton, rice, soybeans, peanuts, sorghums, citrus fruits, or nuts. In the tier of states running from North Dakota to Texas, an area where cereal grains are of prime importance, no reported study has touched on these crops. In the Mountain states, range production of beef cattle and sheep might deserve some attention. This likewise might be true of the southern portion of the Pacific slope, where certain crops and distinct labor problems have an important localized interest.

Studies of farm structures were confined to a comparison of the efficiency of different types of dairy cattle barns, and to suggested arrangements of packing sheds. Most of the studies of farm machinery and appliances gave attention to the development and promotion of time-saving devices. Few attacked the problem of improving labor productivity through a better understanding of the proper handling of the farm machinery which is already available to farmers.

A survey of the work simplification research would not be complete, of course, without some comment upon the extension of the results of our studies. I doubt very much if any other research program of as short a duration has resulted in quite so many reports

(Table 3). Many of these were more or less temporary in nature, put together somewhat hurriedly that immediate use might be made of the findings. I think this method of reporting was quite justified during the war emergency. To date, the 22 Agricultural Experiment Stations which have been and are carrying on studies in farm work simplification have published 11 research bulletins and 14 extension circulars. In addition to this more or less permanent form of reporting, 32 brieflets have appeared, any number of mimeographed publications, several posters, and 20 moving picture films. This last item, this publication of studies of the use of labor

TABLE 3. STATION PUBLICATIONS AVAILABLE

Type	Number
Research bulletins	11
Extension circulars	14
Leaflets	32
Mimeographed letters and circulars	55-56
Films	20

through the medium of pictures, is in one sense a new development. Motion pictures of the utilization of farm labor were made in the United States nearly a generation ago, but publicity given to these early photographic reports of work observed or done was somewhat limited, and most of us have never even seen any of this early work. The films which have been made available to the public since 1940, on the other hand, have probably transferred knowledge from the field of agricultural economics from the laboratory to the layman at a greater rate than ever before. While this method of reporting has assumed a new form and has been adapted to a different audience, its justification and desirability is a matter which at present every man has to evaluate for himself.

To summarize this survey of work simplification research, it might be said that most of the research has been carried on in the northeastern quarter of the United States. Most of the crops and enterprises in that area have received some attention. Research in some sections of the United States, namely the Great Plains area, the South, and the citrus growing sections, do not appear to be directly affected by our new knowledge of work simplification research techniques. In the future, work may be carried over into those areas.

College teaching of farm work simplification is decidedly limited in this country at present. Three out of 42 states report their intention of conducting such courses within this school year. Two other

states in this country which had such courses in the past will probably not repeat them this year or the next.

The main contact which most agricultural college students will make with work simplification will be received in the two or three lecture periods which are devoted to this specific subject in farm management courses at present. This means, of course, that this subject can only be brought to the attention of students in a very general way.

REVIEW*

H. N. YOUNG

Virginia Agricultural Experiment Station

I find myself so thoroughly in agreement with the points of view of Messrs. Bierly and Hoff that I shall not take the time to discuss their paper. To do so would seem to be a waste of time. In my discussion I shall present the point of view of an Experiment Station Director. In a very important sense the job of a research administrator is similar to that of a farmer. A farmer is an administrator of a unit which is a combination of farm enterprises. A successful farm administrator chooses and combines the various farm enterprises in such a way and operates each to that degree of intensity which will result in the largest continuous profit to the farm as a unit. The research administrator is charged with the responsibility of choosing and combining the various research enterprises in such a way and to that degree of intensity which will result in the greatest benefit to those who use the results of research.

A successful farmer adjusts his operations to meet changing economic conditions. A research administrator must attempt to foresee important economic changes and make adjustments in his research program to meet them. Otherwise our research will be too little and too late and we shall be treating symptoms rather than causes.

To those who have made a study of the economic trends of the last 150 years, it should be evident that the farm labor problem is becoming increasingly important. The general trend of wages is upward and has been for a long time. Each major war speeds up the tempo of this change. If history repeats, farm prices will fall within the near future and so may wages, but the drop in wages will be much less severe than in commodity prices. This will make necessary a major increase in labor efficiency on American farms. Our experiment stations will need to intensify still further their programs of research designed to help farmers reduce unit costs of production. Research in the field of work simplification is extremely necessary at present. Throughout the next decade the need for this type of research will far outstrip performance. The reason for this is so evident that it need not be discussed here.

Messrs. Bierly and Hoff have stated that research in work simplification is a job which cannot be accomplished adequately in one department; and

* A review presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 28, 1946.

that it is a joint program in which the farm management, engineering, and commodity specialists should work together as a team. With this I agree. Establishing team work between specialists across departmental lines is a job which has concerned research administrators for a considerable time. There is no one best answer to the problem.

One method of getting the job done might be to employ a generalist who knows a little about almost everything and not much about anything. It is doubtful if any of our experiment station directors would consider this plan seriously. Another method might be to employ a farm management specialist who is also an engineer and a crops and livestock specialist all in one. Such an individual would be hard to find. It would be like looking for God in the flesh. A third way of getting teamwork would be to form a research team of three men, a farm management specialist, an agricultural engineer, and a crops specialist if the job is to learn easier and better ways of harvesting hay. This group would work together on all phases of the project from preparing the project outline to writing the manuscript. The successful operation of this plan would require thorough planning and skillful administration. All departments in the undertaking would need to be politically equal as would all individuals on the team. The team would probably need a leader who would act as chairman rather than foreman of the group. Such an individual should be elected by his team mates rather than carry an appointment from the director. The personality traits of all the individuals on the team should be carefully considered. In each case a good sense of humor would seem to be a practical necessity. A fourth way of making joint use of the talents of research specialists in the fields of farm management, agricultural engineering, and agronomy might be to divide the job into segments and to apportion each part to a different specialist or to conduct simultaneously three separate projects.

Another method of doing the job would be the establishment of a school of work simplification which might cut across departmental, divisional, and college lines in a university. The staff members in such a school might include individuals on the faculty of the department of industrial engineering, the department of farm management, the agronomy department, the departments of horticulture, animal husbandry, agricultural engineering, home economics and a number of others. Each individual would retain his position and rank in his respective subject matter department, but from the point of view of research and education in the field of work simplification, he would be under the administrative direction of the director of the School of Work Simplification. This set-up is similar to that of the School of Nutrition at Cornell University. It would seem to be adapted primarily to the larger colleges and universities which have strong graduate schools.

There are undoubtedly other ways of obtaining joint action between departments in this growing and very important field of work. Each individual institution will need to work out that method which best meets its needs and is best suited to the personnel available and the personalities involved. If there is any one best way of obtaining joint action we are certain that we do not know what it is. We are reasonably sure, however, that joint action is needed.

THE BUREAU OF AGRICULTURAL ECONOMICS PROGRAM IN ENUMERATIVE SAMPLING*

W. F. CALLANDER AND CHARLES F. SARLE
Bureau of Agricultural Economics

Summary

THE Bureau uses six general methods for collecting agricultural data which are used in the preparation of the published statistical series. These six methods are: 1. Questionnaires mailed directly to lists of farmers, processors, etc. 2. Questionnaires distributed by rural mail carriers along their routes. 3. Field observations and personal contact with growers and people who buy or handle farm products. 4. Objective counts and measurements of crops in the field. 5. Complete enumerations. 6. Enumerative sample surveys.

Mailed questionnaires have proved to be the least expensive and most efficient way of quickly collecting information about current production and farm operations for timely reports during the growing season. The use of other methods of collecting data is essential to a complete statistical service for agriculture under the following conditions: 1. If the information cannot be obtained by mail; 2. If individuals or groups not represented either directly or indirectly in the mail surveys must be contacted; 3. If mail surveys do not produce accurate enough results—for instance, in estimating minor agricultural products which are grown only in scattered areas, or in surveying such phenomena as farm income and expenses, non-farm income, farm indebtedness and credit, field cultural practices, and farm accidents.

Many kinds of important agricultural data are difficult or impossible to secure by mail and must be obtained by enumeration or interview from a preselected sample of farm operators. The enumerative survey method makes it possible to reach all types of farms and farmers, including people who do not respond to mailed questionnaires.

Statistics obtained in this way can be expanded into estimates for a small area within a State, for an entire State, for a group of States, or for the Nation as a whole, depending upon how many

* A paper presented at the Round Table on Agricultural Statistics at the annual meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

farmers are interviewed and how great an area is covered. The sample may be expanded into an estimate without reference to a census "bench mark."

If national totals only are desired, the number of farms in the sample may be quite small for certain items. But to get accurate estimates for regions, States, or areas within States, proportionately larger samples are necessary. Thus, if State estimates are desired, almost as many interviews may be necessary within each State as would be required throughout the entire country for corresponding national estimates. The accuracy of an estimated average or total depends on the number of observations included in the sample as well as on the frequency of occurrence and degree of variability of these observations.

Demand for more statistics about farm business and farm people is so pressing that steps are already being taken to collect more factual information to establish new statistical series and strengthen the Bureau's present series for wider use.

The Enumerative Survey Program

The Bureau of Agricultural Economics will make a nation-wide interview or enumerative survey of a cross-section, preselected sample of about 16,000 farm operators in January 1947. This survey is part of a continuing program (a) to improve the accuracy of the official agricultural estimates of the Department, (b) to provide such needed economic facts concerning farming as a business, and farm people as can only be obtained by personal interviews with a preselected sample of farm operators, and (c) to integrate future surveys such as those conducted in farm management, land economics, farm finance, and other fields into an over-all sampling pattern that will enhance the effectiveness of agricultural economic research.

Field Work.—The field work will be done under the immediate supervision of the field statisticians in the Bureau's 41 State Offices. About 400 rural people will be employed and trained as interviewers to visit the farms included in approximately four Master Sample Segments in each of about 800 counties in the United States. These sample segments have an average of about 5 farms each. Previous nation-wide enumerative surveys have been taken in not to exceed 160 counties.

Three area training conferences of one week each were held for

the State supervisors in the Bureau's 41 field offices. Three-day training conferences for the interviewers will be held in each State just prior to the starting of the survey on January 13, 1947. In these training conferences major emphasis is being placed on the application of sound *social-psychological* principles to the interview situation for the purpose of minimizing bias in the data obtained and establishing satisfactory rapport with farm respondents. An "interview" rather than a "record" form of schedule will be used.

Tabulation, Summarization, and Analysis.—The schedules will be edited and coded in the field offices and the data entered on punched cards in the Washington Office for machine tabulation and analysis. We expect to have these data punched and the more important summarizations completed by the middle of April. This will provide results of the January Survey at an early date and also "clear the decks" for the April Survey. Final economic analysis and reports will be prepared by subject matter specialists in the various divisions of the Bureau.

Design and Size of Sample.—The sample of about 16,000 farms in January has been designed to provide a representative cross-section of all farms in major geographic regions and type-of-farming areas, and at the same time establish a sampling machine that can, with expansion, furnish a sample for use in making estimates by States.

Schedule Content.—Two separate schedules will be used—a "short" and a "long" one. The "long" schedule will be used on a subsample of one-half of the farms in the sample in the Mountain and Pacific Coast States and on one-fourth of the farms in the other States except in Illinois, Pennsylvania, and New York where the "long" schedule will be used with a larger proportion of the sample. The basic or "short" schedule includes nine topics as follows:

1. Accidents to farm people during October–December, 1946.
2. Acreage in the farm and tenure.
3. Prices of farms.
4. Farm population.
5. Farm employment and wages for the week ending January 11.
6. Numbers of livestock on hand January 1 including also:
 - (a) Number of sows farrowed and pigs saved between June 1 and December 1, 1946, and intentions concerning spring farrowings.
 - (b) Cattle being fattened or finished on grain or other concentrates.
 - (c) Intentions to market cattle on grain feed—time, weights.

7. Inventory of farm tractors—number, age, and model.
8. Crop inventories January 1, 1947.
9. Farm receipts during 1946.

The so-called "long" schedule includes all the topics covered by the "short" schedule and in addition will cover:

10. Farm operating expenses during 1946.
11. Family living expenses during 1946—an abbreviated section developed in cooperation with the Bureau of Human Nutrition and Home Economics.
12. Income derived from non-farm sources during 1946.

Topics 1 through 9 will be taken from the total sample of 16,000 farm operators, and topics 10, 11, and 12 from a subsample of nearly 6,000.

April and July 1947 Surveys.—These surveys will be taken on a subsample of the January sample of farms and will place major emphasis on topics that vary with the season of the year such as farm employment and wages, accidents, acreages of wheat and winter cover crops; farm stocks of wheat, corn, and oats; number of hogs and cattle on grain feed; milk and egg production. In April a topic on farm electrification and telephone service will be included and in July one on farm mortgage indebtedness and credit and possibly a short topic on field cultural practices.

October 1947 Survey.—In addition to the topics with high intra-seasonal variability major emphasis will be placed on land utilization including acreage and production of various crops.

THE PLACE FOR ENUMERATIVE SURVEYS IN RESEARCH AND GRADUATE TRAINING IN AGRICULTURAL ECONOMICS*

CHARLES F. SARLE

Bureau of Agricultural Economics

FOR more than 20 years the need for enumerative or sample surveys that would provide a true cross-section of farms and farm operators in any specified area has been recognized by agricultural economists and statisticians of the Bureau of Agricultural Economics and the Land-Grant Colleges. It was the recognition of this need that led to the cooperative research in sampling by the Bureau of Agricultural Economics and Iowa State College that was undertaken in 1936. This basic research, made possible by Bankhead-Jones funds of the Secretary of Agriculture, has been conducted in close cooperation with the Census Bureau since the early 1940's. The Master Sample is a product of this three-way cooperation. The Master Sample material now available makes it possible at small expense to design a representative sample of farms or farm operators in any area east of the hundredth meridian. Further research, however, is needed in applying the sampling principles already developed to the special conditions that exist west of the hundredth meridian, where the use of area sample segments does not, in all cases, adequately sample the cattle and sheep operators who utilize public grazing lands.

The time has come for everyone interested in the development of agricultural economic research to give thoughtful consideration to the remarkable potentialities of utilizing enumerative surveys to strengthen research and graduate training in agricultural economics. During the last 20 years the effectiveness of biological and physical research relating to agriculture has become increasingly productive through the use of more efficient experimental designs based on modern statistical concepts. One approach to this question would be to state briefly the conditions essential to sound conclusions in systematic economic and social research and to point out how enumerative sampling can be utilized to meet one or more of these essential conditions. The validity of conclusions depends upon several conditions such as—

1. The definition of the problem to be investigated—its purpose and context.
2. A summarization of findings from previous investigations of a

* A paper presented at the Round table on Agricultural Statistics at the annual meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

- similar or related nature. If little or no work has been done on this particular problem, actual inspection and exploration of the situation including case-history studies may well be necessary at this stage.
3. The formulation of provisional and usually alternative hypotheses for subsequent testing. In fact the problem is not clearly formulated until possible solutions are systematically stated.
 4. A decision as to what facts are wanted for use in testing the provisional hypotheses. If a field survey is to be made, a decision is necessary concerning the facts that are to be obtained from the individual farm operators and the tabulation and summarization plans must be made *in advance* by the investigator if the results are to be satisfactory.
 5. The collection of the new body of facts. If a field survey is to be made, this step in the investigation involves several important phases:
 - a. The drawing up of a field schedule that will get the facts desired in the shortest possible time and with a minimum of interviewer and respondent bias and a minimum of refusals. Sound social-psychological principles must be applied intelligently in the construction of the schedule and in the training of the interviewers in establishing rapport with the respondents and in conducting the interviews. The schedule should be thoroughly pre-tested and revised on the basis of such experience.
 - b. The design of a sample that will give a true cross section of the population that is to be included in the study, i.e., a representative sample in which both sampling error and field costs will be at a minimum.
 - c. The taking of the field survey by well qualified, properly trained and supervised interviewers at a time when the desired facts can be obtained most accurately, i.e., when memory bias will be a minimum. Both season-to-season variability and intraseasonal variability of the phenomenon must be kept in mind in timing a field survey or a series of surveys. Furthermore, the interviewer must be thoroughly trained and competent in so far as knowing the content and purpose of the schedule is concerned, able to conduct a successful interview, and able to *accurately locate* the respondents to be included in the preselected sample.
 - d. The editing and coding of the schedules for machine tabulation.
 6. The summarization and analysis of the facts; the expansion of the sample into an estimate for the population from which the sample was drawn.
 7. The testing of provisional and usually alternative hypotheses that were formulated before the new facts were obtained; the interpretation of the facts including relationships that appear to be established by the study; the drawing of conclusions and generalizations; and also the formulation of new or modified hypotheses for subsequent testing when a new investigation is undertaken.
 8. One other highly important condition of valid research that is sometimes overlooked is that the *same data* cannot logically be used *both*

for establishing or discovering an hypothesis and also for testing or substantiating it.

Enumerative sampling can be utilized to materially strengthen what is often the weakest link in one of the conditions essential to sound conclusions in systematic economic and social research that involves field surveys—the collection of the new body of facts for use in testing provisional and alternative hypotheses. Not only can enumerative sampling provide a representative sample from the population of inquiry which is, of course, *necessary* if valid generalizations are to be made concerning such a population, but it also can be made to furnish more accurate and unbiased data through the effective application of valid social-psychological principles in the interview process. Furthermore, the necessary emphasis on formulating provisional hypotheses and tabulation and analytical plans *in advance* of the construction of the field survey schedule definitely tends to promote more rigorous thinking and to result in better quality and more efficient research, especially among graduate students who are learning how to conduct agricultural economic investigations.

The Land-Grant Colleges undoubtedly have a very real interest in the objectives of the enumerative survey program because they appreciate the need, not only for current agricultural statistical series of broader scope, greater geographic detail and higher accuracy, but also for more effective and useful research in the field of agricultural economics. Economic data relating to farming as a business, and to farm people, from a representative cross-section of farms in each State would provide the research economist of the Land-Grant Colleges and the Bureau with a wealth of this much-needed information for economic research such as has never before been at their disposal.

A substantial increase in the size of the sample would make it possible to obtain a wide range of pertinent agricultural economic information on a basis that would justify estimates and analyses by States and even for areas within States. In only a very few States is the January enumerative survey sample adequate as to size and geographic distribution to justify estimates by States. As the data from these surveys will be entered on punched cards to facilitate summarization and analysis, a duplicate set of punched cards could be made available to the Agricultural Experiment Stations that actively cooperate with the Bureau in the expansion and development of the enumerative survey program in their States. The data

obtained from two State-wide enumerative surveys of about 800 farms in Iowa for 1938 and 1939, have been utilized to provide the basic data for some 20 graduate theses.

In order to most effectively meet research needs, especially of the Land-Grant Colleges, it would seem desirable to consider the development of the enumerative survey program at three levels within the States:

1. A large State sample with a relatively short schedule that would include topics that specify the basic characteristics of a farm such as acres operated, tenure, farm population, acreage and production of crops, numbers and kinds of livestock, and other inventory items.
2. A subsample of the first with a schedule that would include the added topics of farm income and expenses, non-farm family income, and related topics.
3. A relatively small subsample that would be used for more intensive purposes and special investigations where farms with specific characteristics would be the object of study.

The primary purpose of sampling at the first level would be two-fold; first, to provide a basis for State estimates and for areas within the State and second, to furnish a basis for the selection of a expansion of subsamples for the other two levels. One objective of the second level of sampling would be to provide State estimates of income and expenses and frequency distributions thereof. This level also would be of special interest to research workers in farm management and farm finance. The third level would have a great variety of uses in terms of the special problems and fields of interest of the staffs of the Land-Grant Colleges. The content of the schedules used at different levels must be integrated in order to permit valid generalizations from the smaller subsamples.

The mutual advantages of close federal-State cooperation in developing a sound and well-integrated program in enumerative sampling are I think obvious. A well-planned continuing enumerative survey program with a considerably larger preselected cross section sample of farms distributed in all agricultural counties of a State, taken by a well-trained corps of carefully selected interviewers at appropriate times during the year would serve as a sound foundation for economic research and graduate training; in fact it would be a technological revolution of the first magnitude. The active cooperation of the Land-Grant Colleges in planning and carrying out such a program is earnestly solicited by the Bureau of Agricultural Economics.

THE SAMPLE DESIGN FOR A NATIONAL FARM SURVEY BY THE BUREAU OF AGRICULTURAL ECONOMICS*

EARL E. HOUSEMAN

Bureau of Agricultural Economics

ELSEWHERE in this issue Callander and Sarle have discussed plans for the collection of data by enumerative surveys in the Bureau of Agricultural Economics and pointed out that in January 1947, a nation-wide sample of about 16,000 farmers in 816 counties will be interviewed. The purpose of this paper is to give a concise non-technical description of how the sample was designed and a few statements on the magnitude of the sampling errors.

The sample was designed primarily for sampling farms; however, it is expected that the part-time staff of interviewers will also be useful in the collection of data from sources other than farm operators, such as landlords of tenant operated farms, the rural population, elevators and warehouses, or the taking of field observations for estimating yield and quality of crops. Thus, a flexible field organization and sampling plan are important.

The essential facts about the sample in summary are:

(1) Every county in the United States, with very few exceptions, was included in the universe and given a chance of being in the sample.

(2) Three different over-all sampling rates were used:¹

0.6% in the Northeast (New England plus Middle Atlantic States) and in the Pacific states, Florida, Maryland, and Delaware

0.25% in some of the larger southern states

0.3% in all other states

(3) For the United States as a whole, a total of 784 primary sampling units or 816 counties was selected. A primary sampling unit is a single county or a group of two or more counties which are treated as one.

* A paper presented at the Round Table on Agricultural Statistics at the annual meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

¹ Instead of using only one sampling rate, different sampling rates were used mainly to improve the distribution of the sample for purposes of getting estimates by four major geographic regions for some items, particularly farm labor. The four regions are the Northeast, the North, the South and the West which includes the Pacific and Mountain States. To facilitate tabulation and analysis, it was desirable to keep the number of different sampling rates at a minimum.

(4) A staff of about 400 part-time interviewers will be used. The most common situation will be one interviewer for two sample counties and about 20 interviews per county.

(5) Within the 816 sample counties, a subsample of approximately 4000 segments in the Master Sample of Agriculture have been selected.²

Selection of the Primary Sampling Units

All counties in the United States were divided into 408 groups or strata, each state being handled independently except for the Mountain States and the New England States. The process of grouping the counties was accomplished by using the most recent B.A.E. generalized type-of-farming-area map, which classifies territory on a county boundary basis, and a county outline map for each state. On the county outline map the products of the over-all sampling rate and the number of farms in the counties were written within the county boundaries. These numbers are the expected numbers of sample farms for the various counties assuming they are all sampled at the over-all sampling rate. With the county outline map, the type-of-farming-area map, and an adding machine the groups of counties were formed in such a way that each had about 50 sample farms and was bounded insofar as possible by type-of-farming-area delineations.

The number of sample farms per stratum in a given state was allowed to vary within a range of about 10 sample farms on either side of the average size of stratum in order to get greater homogeneity of type of farming within the strata than would otherwise be possible. In the south the strata averaged more than 50 sample farms and in the mountain states the average was down to about 40. This gave a total of 408 strata which were comprised of geographically contiguous counties with only a few exceptions. Although the average stratum has approximately 50 sample farms, it is expected that only an average of about 40 schedules will be

² King, A. J. and Jessen, R. J. The master sample of agriculture. *Jour. Am. Stat. Assoc.*, 40: 38-56, 1945.

Briefly, the Master Sample is a nation-wide sample from every county in the United States. The sampling units are small areas or segments of land which have identifiable boundaries and contain on the average about five farms each. A "restricted" random sample of 1/18 of all such segments was selected and that sample has become known as the Master Sample. The base material is available for the selection of new segments not in the Master Sample at a cost below the original cost of the Master Sample.

obtained from each because of the plans for making call-backs on only a sub-sample of farmers not at home on first call. Each stratum corresponds approximately to one interviewer.

As the 408 strata were delineated each was reviewed and a decision made to follow one of three alternatives: (1) Select one primary sampling unit and confine the sample from the stratum to the selected p.s.u. (primary sampling unit), (2) Divide the stratum into two approximately equal parts and select one p.s.u. from each half stratum, and (3) Take a sample from all counties in the stratum. The first choice was generally followed in areas where farms were relatively sparse, where the agriculture was unimportant, and where travel conditions are difficult. The second choice was followed most frequently and the third choice was followed when a stratum was comprised of a small number of counties (about four counties or less) unless the agriculture was unimportant. Regardless of the choice of alternatives, one p.s.u. in each stratum was specified for an interviewer to live in. These 408 p.s.u.'s specified for the residences of interviewers constitute in themselves a national stratified random sample of 408 p.s.u.'s. All p.s.u.'s were selected at random with probabilities proportional to their numbers of farms.³

Just how far the sample should be scattered received considerable discussion before the sample was designed. It seemed clear that the staff of about 400 part-time interviewers should not be concentrated in a sample of, for example, 100 p.s.u.'s with 4 men per p.s.u. or 200 p.s.u.'s with two men per p.s.u. From a statistical standpoint designing the sample so there is more than one interviewer per p.s.u. is almost certain not to give results having the lowest sampling errors per dollar spent on the survey. Moreover, putting more than one interviewer in a p.s.u. is not in line with the desire of getting information by greater and greater geographic detail and of trying to maximize the utility of the field staff for the collection of data from various sources. Under some administrative organizations it is conceivable that one should not scatter a sample too broadly because of loss of control on non-sampling errors due to poor supervision and instruction. The question in our case on how much to scatter the sample was a choice between three alterna-

³ For a technical explanation of why the primary sampling units should be selected with probabilities proportional to their sizes, the reader is referred to a paper by Hansen and Hurwitz, On the theory of sampling from finite populations. *Ann. Math. Stat.* 14: 333-362. 1943.

tives: (1) Confine the sample to a selection of 400 p.s.u.'s, (2) Scatter the sample into all important agricultural counties and into only a sample of counties in unimportant agricultural areas, or (3) Take some intermediate amount of scatter which is what was actually done.

Mathematical analyses of variability and costs are indicating, in order to maximize accuracy per dollar spent, that a national sample of the size just described should be more broadly scattered, probably to the extent of sampling almost all counties except in areas where the density of farms is low. However, there are some administrative considerations which cannot be put into a mathematical formula and probably act in the direction of reducing the amount of scatter. All things considered and with our present status of knowledge, the amount of scatter in the sample as it was designed seemed to be about the optimum. If the sample had been larger (40,000 or 50,000 farms), nearly all counties would have been sampled; whereas if the sample had been smaller, probably fewer counties would have been selected for sampling. In future surveys the amount of scatter can be altered as any new information may indicate.

Magnitude of the Sampling Error

It is the opinion of the writer that with few exceptions the present sample is too small to provide satisfactory estimates by states. That statement, however, is dependent upon the standards of accuracy that one wishes to set up, which brings us to the question of the accuracy of various estimates.

It is difficult to make a few statements which are generally applicable because of variations in the sampling design over the country and so many conditions need to be specified. For example, an estimate of a component of total income, such as income from the sale of crops, has a larger relative sampling error⁴ than an estimate of total farm income. The relative sampling error for an estimate of income from a particular crop would be still larger. The amount of geographic detail and the extent of the breakdowns of the data as well as the choice of a method of estimation also need to be specified in order to make exact statements.

⁴ Coefficient of variation (i.e., the standard error of the estimate expressed as a percentage). If the relative sampling error is 10 percent, for example, the probability is $\frac{2}{3}$ that the sample estimate is within 10 percent of the value that would be obtained from a complete enumeration taken under identically the same conditions.

In general the class of items having the lowest sampling errors, which will be referred to as the "least variable items," are the ones reported on a high proportion (at least 80 percent) of the farms; for example, farm income, farm expenditures, value of land and buildings, acres in cropland, farm population, or number of automobiles. Items like farm income and farm expenses might have large non-sampling errors which are not taken into account. The following statements are not based on exact calculations and are intended only to give an idea as to the magnitude of the sampling errors.

Many of the states east of the plains states, with the exception of those in the Northeast, have about 20 to 25 sample counties, or a sample of about 400 to 500 farms. For such states the sampling errors for estimates of the least variable items without any breakdown vary roughly from about 8 to 15 percent. On the other hand the sampling errors for national estimates for the least variable items are less than about 3 percent.

For state estimates and analyses, all counties ought to be sampled. Assuming that all counties are sampled in proportion to their size, to give a state sample of 1,000 farms, the sampling errors of state estimates of the least variable items are expected to range from roughly 3 to 8 percent.

FARM ATTITUDES AND METHODS OF SUPPORTING PRICES*

L. H. SIMERL

Illinois Agricultural Association

A SUBSTANTIAL number of people in this country, including some agricultural economists and some farmers, are opposed to all government action programs to support prices of farm products or to maintain farm incomes. However, the nation as a whole seems to have accepted the principle of a permanent national farm program. The principal questions seem to concern (1) the *amount* of federal aid to agriculture, and (2) the *method* of its distribution.

As to the amount of federal aid for agriculture, it is interesting to examine some estimates of future federal budgets. The Committee on Postwar Tax Policy estimated annual requirements of \$500,000,000 to \$800,000,000 for agriculture.¹ The Twentieth Century Fund placed the figure at \$965,000,000.² The National Bureau of Economic Research estimated the annual expenditures for agriculture at \$1,000,000,000 to \$2,000,000,000.³ These estimates probably are based largely upon actual expenditures during the 1930's, but they are not inconsistent with programs suggested for future years by agricultural economists.⁴

The two most widely discussed general methods of distributing federal aids to agriculture are: (1) market price supports, and (2) direct payments to farmers. The methods used in the postwar price support period likely will be continued in use through later years.

Many agricultural economists see important economic advantages on the side of direct payments to farmers, especially in connection with perishable and semi-perishable products. The principal economic advantage of the direct payment plan appears to be that farm products would not be sent to market in greater quantities than market facilities could handle.

On the other hand many farmers, perhaps a majority, are opposed to the direct payment plan and insist that market prices be

* A paper presented at the Round Table on Advantages and Disadvantages of Direct Payments to Farmers as a Substitute for Market Price Supports at the annual meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

¹ The Committee on Postwar Tax Policy, *A Tax Program for a Solvent America*, p. 13; The Committee on Postwar Tax Policy, New York, 1945.

² Groves, Harold M., *Postwar Taxation and Economic Progress*, p. 381; McGraw-Hill Book Company, Inc., New York, 1946.

³ *Ibid.*, p. 380.

⁴ Working, E. J. and Norton, L. J., "Supporting Farm Income," *Illinois Farm Economics*, Nos. 131 and 132; pp. 345-351; April and May, 1946.

supported. The reasons for the farmers' opposition to direct payments are partly social and political.

Farmers feel they have a right to insist upon market price support. Both the Steagall Amendment and the Stabilization Act of 1942, as amended, clearly indicate that Congress intended to support market prices. Most farmers expect the government to keep this wartime promise. They have this expectation notwithstanding the fact that they believe that government agencies deceived them several times during recent years.

Farmers oppose direct payments not only because they are a subsidy, but because they are an odious form of subsidy.

As a general rule, agriculture needs financial assistance only in periods of low employment and industrial activity. Under these conditions it is not agriculture, but industrial labor and management that has failed. Why, then, should farmers be subjected to the indignity of accepting a dole? If a dole must be used, why not give it to laborers and industrialists to keep them producing?

It is not that either labor or industrialists are opposed to accepting special benefits at the expense of the public. In fact, both groups constantly seek and accept indirect subsidies.

An outstanding example of the special benefits for capital and management is the high protective tariff wall erected and maintained by Congress for the producers of non-agricultural products. This tariff provides an indirect subsidy for the owners of protected industries at the expense of the general public. The government also comes to the aid of the businessman with loans of the RFC type at artificially low interest rates. Businessmen who profit from these indirect subsidies feel a sense of independence and self-righteousness which they could not enjoy if they received equal benefits in the form of direct government payments. Farmers feel they are entitled to comparable treatment.

Labor too receives indirect subsidies. Wage rates, especially in highly unionized groups, are often fixed and maintained at artificially high levels through government support. The law grants the union member, especially one with long seniority, a preferred position even though a dozen better men would gladly take the job at a lower wage rate. The workman with little seniority is soothed with unemployment compensation or some other form of public assistance.

When farmers are asked to accept supplemental payments or other forms of direct subsidies, they might well ask that capital and

labor first give up indirect benefits and accept direct subsidies. A program of supplemental payments to capital would have considerable merit. A sort of negative income tax might be devised. Corporations sustaining unusual losses might be partially reimbursed from the Federal Treasury. This would encourage investment, sustain consumer demand, and thus tend to prevent serious depressions. However, I doubt that businessmen would favor this or any other scheme of direct payments.

A program of supplemental payments to labor might be more popular with business leaders. Subsidies for employed labor would have many advantages. Wage rates and consequently production costs could be flexible and prices could be lowered to maintain sales when demand slackens. The supplemental payments to labor would maintain consumer buying power at a high level. The combination of a continuous high output of industrial products and sustained consumer buying power would greatly reduce, if not eliminate, the need for either agricultural price supports or direct payments to farmers.

The idea of supplemental payments to labor is not a common one, but neither is it new. In fact, the scheme was used in England beginning around 1800. John Stuart Mill has described the plan, which was known as the Allowance System. After 30 or 40 years, the system was abandoned, and Mill reported that "nobody professes to wish for its revival."⁵

Although direct subsidies to labor would have many beneficial results, it is doubtful that labor groups will ask for or submit to any program of supplemental payments as a substitute for high and irreducible hourly wage rates.

Probably there are a number of good reasons for general opposition to direct subsidies. Possibly one of the most important objections to direct payments is that there would be a strong tendency to increase them indefinitely. This may be inferred from the demands of labor unions and relief clients. The wage demands of some labor unions apparently are unlimited. However, so long as wages are paid out of earnings, there is firm resistance as demands reach unreasonable levels. There would be no such resistance to demands for increased supplemental payments.

A similar principle would apply to supplemental payments to producers of agricultural products. If the plan of supplemental pay-

⁵ Mill, John Stuart, *Principles of Political Economy*, Book II, pp. 225-232; Longmans, Green and Co., London, 1900.

ments would be adopted, political leadership would have to keep such payments foremost in mind at all times. Undoubtedly, politicians would vie with one another to see who could promise the largest supplemental payments.

These tendencies have already been demonstrated in Illinois in connection with unemployment compensation and other forms of relief. Each group receiving public assistance is constantly pressing for larger amounts. The relief vote is the dominating factor in many elections. I suspect that similar conditions exist in other states.

This is a bad condition. It ought not to be extended.

In giving much attention to the method of price or income support, we may overlook something even more important, namely, the *level* of support. To be sure, Congress has made some definite commitments in this respect. However, the formulas for neither short run nor long run support activities have been agreed upon. Many, perhaps most, of the anticipated difficulties of market price supports would not be serious if support programs are instituted at reasonable levels. In my judgment agricultural economists can render a great service to farmers and to the nation by working with policy-making or policy-influencing groups to determine minimum acceptable levels of support.

Agricultural economists have far-reaching responsibilities. These responsibilities include the discovery and description of economic laws and tendencies of special importance in agriculture. Much progress has been made in this field, although we find many areas improperly mapped or entirely uncharted.

At the present time, however, the greatest responsibility of agricultural economists is to break the bottleneck between the agricultural economists and those who make national agricultural policy. The responsibility for breaking this bottleneck rests primarily with the agricultural economists rather than with the policy makers at the grass roots. All trained agricultural economists have the inherent responsibilities of the educated persons to society. In addition to this, agricultural economists serving in public capacities have special responsibilities because they are employed at public expense.

It will not be easy to break this bottleneck between theory and practice. It will require educational skills of the highest order. The degree to which agricultural economists meet their responsibility will be evident in the nature of the national agricultural policies adopted during the next few years.

ADVANTAGES AND DISADVANTAGES OF DIRECT PAYMENTS

WITH SPECIAL EMPHASIS ON MARKETING CONSIDERATIONS*

R. J. EGGERT

American Meat Institute

THE objective of my part in this discussion is to outline briefly some of the pros and cons of making *direct governmental payments to farmers* as a substitute for the various techniques associated with *governmental support of market prices*. Since our chairman has asked me to give special emphasis to marketing considerations, I plan to develop in somewhat greater detail those merits and weaknesses relating to this field.

Direct payments to farmers as a substitute for market price support, in my judgment, have the following advantages:

1. Direct payments encourage maximum domestic consumption of current production consistent with supply and demand conditions. This is in contrast to the alternative methods of price support which tend to lead to burdensome stockpiles (especially of non-perishables) or a serious disposal problem often resulting in excessive waste and spoilage (especially of perishables and semi-perishables). In stressing this advantage of maximizing domestic consumption consistent with supply and demand conditions, it is clear that all of the product would be available for consumption. There have been conditions during periods of excessive supplies and sharply dropping buying power that market prices of an individual commodity even in a relatively free economy would drop to a level that would not pay for the cost of harvesting and marketing the product. Thus, except under conditions of a completely inelastic demand, *more product* would be consumed with the use of direct payments rather than if prices were supported, and probably more product would be consumed than under relatively free supply and demand conditions without direct payments.

Furthermore, with highly perishable products, storage

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space is inadequate for a purchase program to be even temporarily successful in a period of wide negative difference between the support level and the market prices. For most perishables storage capacity amounts to 10 percent or less of production, and in the majority of cases a large proportion of this capacity would be filled by the time the support program was put in operation. While canning in the case of meat, and drying in the case of eggs, would offer temporary relief, it is improbable that large enough quantities could be absorbed in this form to maintain prices.

2. Direct payments aid in encouraging exports of those commodities of which the country produces an exportable surplus. Purchase or loan operations, on the other hand, tend to keep domestic market prices at a level that encourage "would-be" foreign buyers to go elsewhere.
3. Capricious interference with current market prices and desirable storage operations of processors is avoided by limiting the effect of arbitrary and often "pressured" governmental decisions relative to where, when and what to buy, or relative to where, when and what to sell (or give away). Illustrations of concerted government action on a particular day or a particular month in buying or selling product are so numerous that they need no elaboration in this discussion. Such action on the part of government is in sharp contrast to the dispersion within time resulting when large numbers of units act independently in buying or selling product. The very momentum which finally results in the Government's taking action often results in the action being not only too late but too drastic. Since risk is a cost factor, the added risk of trying to predict what action the government will take would certainly tend to increase marketing cost. To the extent that product purchased by the Government does not flow through commercial, merchandising channels (especially retail levels)—volume would be reduced and marketing costs increased.
4. The use of direct payments helps to clarify the true current economic value of current production, which gives a basis for making adjustments in future support levels based on the degree of disparity between the market price and the support level. If this relationship between the market price and the support level is used to adjust future support levels (moving

average technique), this procedure will help to avoid requiring farmers to limit production in the form of imposing on them unpopular and often uneconomic governmental production controls and at the same time give them some protection against sharp and sudden changes in incomes. Direct payments also can be made contingent on improved management practices, thus helping to justify their existence to the economy as a whole.

The following major disadvantages of direct payments as a method of price support may be noted.

1. Administrative difficulties in making direct payments and administrative expenses constitute a serious but not an insurmountable disadvantage.

It has been pointed out that direct payments could not be based on the difference between each individual sale and the predetermined support price. If both the buyer and seller knew that the seller was to get a fixed realization regardless of the actual price paid, there would be opportunity for deals and other manipulations. In fact, this point probably would prevent the Government from taking too small an area as a basis for establishing a market price and the differential payment. However, if the average market price over a broad area—for example, a state was used, administrative difficulties along this line could be avoided.

Another apparent disadvantage of direct payment would be that some period of time would have to be used as a basis for establishing the differential between market price and support price. If this period was too long, serious objections could be raised as a result of sharp changes of prices within the period. For example, if payments were made using the average market price for a month, a farmer who sold his hogs early in the month, when the price was high, might get a substantially higher total realization than the farmer who sold later in the month after there had been a significant decline in market prices. This disadvantage resulting in inequity to farmers probably could be avoided by using a short period of time—say a week—arriving at an average price within a given state, crop reporting district, or region.

Another objection to direct payments has been made along

the line that these payments would necessarily have to be a uniform amount on all kinds, grades, weight ranges, etc., of that particular product. However, experience with the lamb subsidy and feeder cattle subsidy that was paid direct to producers, suggests that there are various ways of getting around this difficulty. For example, the bill of sale used as a receipt by the farmer to collect the direct payment would show not only the price but the weight which would permit adjustments between weight ranges. In addition, the market prices received could be used as a basis of establishing the grade of the product. In other words, all sales between a certain price range could be assumed to be a certain grade, and all sales between other price ranges could be assumed to be another grade, and differential direct payments by grades could thus be made.

Another serious difficulty that has been suggested has been that much of the product does not pass directly into the hands of a processor. For example, in the case of hogs, they may be sold to local dealers, through auction markets, to truckers or others, before they reach the packer. It is clear that where sales were made direct to a certified processor at a public market or elsewhere, the farmer could take his bill of sale to an appropriate Government agency and collect his direct payments. On the other hand, if a farmer sold his hogs to a local dealer who shipped them to public market where they passed through the hands of a yard trader before they were sold to a slaughterer, it would be impossible to make the payment direct to the farmer, or to eliminate the possibility for the payment to be collected more than once. Experience with OPA subsidies again would indicate that there is a solution to this problem. The direct payment would have to be made to the seller who sold to specified, certified processors. The fact that the marketing agent would receive the payment would result in his offering a price that would reflect the amount of the direct payment. This solution would preclude the use of the United States farm price series as a basis for establishing the current market price since part of the reported prices would include the direct payment. Prices by states or regions would have to be established on the basis of some normal differential between the price in that area and some central market within

that state or region. This would also preclude the possibility of direct payments influencing the prices farmers would report to the Government.

2. Direct payments would result in higher cash cost to the Government since the demand for most agricultural commodities is relatively inelastic. However, cost to the economy as a whole would be no greater, and probably would be less (depending upon the use of the purchased product) since the public as a consumer, rather than as a tax payer, would have to pay the cost of the higher support market prices assured by purchase or loan or food stamp plan operations.

More work needs to be done to determine just what the cash cost to the Government would be with the program of direct payments. For illustrative purposes, I have made a rough approximation of the average cost of direct payments to farmers for hogs for the period 1910 through 1945. Using estimates of total live weight of hogs sold, as published by the United States Department of Agriculture, which excludes farm slaughter, and using market prices that actually prevailed over the 36-year period, the average cost of direct payments to farmers to keep hogs up to the parity level would have been approximately 340 million dollars a year. Payments would have had to be made in 28 of the 36 years, with the peak in payments of 930 million dollars in 1923. If 90 percent of parity had been used as a basis for establishing the direct payments, the average cost over the 36-year period would have been 235 million dollars, and payments would have been made in 25 of the 36 years. If a 10-year moving average had been used as a basis of establishing the support level, the average cost to the Government, over the 36-year period would have been 128 million dollars, and payments would have been made in 15 of the 36 years. Much to my surprise, a 5-year moving average to establish the support level would have cost the Government about the same as the 10-year moving average—about 129 million dollars a year.

I am sure that some of you are ready to point out that this comparison is not an accurate one since the market prices that have prevailed would not have been the same market prices that would have resulted if the support program had been in effect, since supplies would have been different. I agree with

this fully, but would like to suggest that over the 36-year period, costs would not have been much different because (a) there is only so much feed, and allocation between different uses would fairly well iron themselves out over a period of time (assuming support program on all commodities), (b) the most important factor determining change in price is the change in price level on the demand side, and (c) if moving average technique was used as a basis of establishing support levels, the lower price in any one year, resulting from larger supplies, would have resulted in the moving average dropping faster in later years.

3. This method of price support leads to the objection on the part of farmers that it constitutes a so-called "cheap food policy." Farmers, as well as other groups, prefer subsidies to be paid indirectly through prices rather than directly through outright payments.
4. Direct payments are less flexible than a direct purchase program especially for minor, miscellaneous commodities, or when supply and demand price is only slightly below support levels.

SOME EFFECTS OF COMPENSATORY PAYMENTS*

O. H. BROWNLEE
Iowa State College

MY REMARKS are directed primarily toward some of the subsidiary or "by-product" effects of compensatory payments. The term compensatory payment is currently being used to describe a number of different proposals most of which are designed primarily to supplement farmers' incomes. The proposals differ in the manner in which they would distribute compensation among farmers. Some would determine the distribution according to the volume of each farmer's production weighted by the discrepancy between market prices and some price commitment—parity prices or some forward prices based on other than historical criteria. Others would base the distribution only upon the income of each farmer. The signal for distributing payments under some proposals would be given when the ratio of per capita farm income to per capita non-agricultural income fell below a specified level. Where forward pricing and compensatory payments are tied together in a single program, a discrepancy between market prices and price commitments provides for distribution of these payments.

When compensatory payments are used to meet forward price commitments, the allocation of resources is determined largely by the pattern of forward prices. This allocation can be "good" (conform to the pattern of consumer preferences as constrained by incomes and expressed in the price system) or "bad," depending upon the restrictions attached to the pricing principles. During the balance of the period of the Steagal commitment, the allocation pattern may turn out to be somewhat inferior, since the pricing formula is based largely upon ancient historical price relationships which no longer adequately reflect relative costs or consumer preferences.

The primary advantage of using payments to meet price support commitments is that it permits markets to be cleared through "normal trade channels" and avoids the accumulation of excessive storage stocks. Government could meet its pledges by buying at the

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support prices and could then sell at prices which would clear the markets. But, there are some dangers in this procedure.

Agricultural programs are sometimes "sold" to the general public on the grounds that they will be of marked benefit to the non-agricultural sector of the economy. Agricultural fundamentalists have claimed, for example, that supporting farm income would be sufficient to support also non-farm income. Some of the aspects of this contention merit discussion. There is some danger that such contentions may be oversold.

The impacts of compensatory payments upon production and employment in the economy as a whole are likely to be brought about through the effects upon "markets"—total money expenditure for goods and services. Action upon the level of employment via techniques which will affect "markets" bears the stamp of approval of many economists. Such action permits separation of the problems of distributing income and full employment. The rich as well as the poor can be encouraged to expand their expenditures. And it also makes possible limiting the role of government as producer and employer to areas where government production is considered to have advantages over private production. Public projects of the "make work" variety can be minimized.

Insofar as the total expenditure involved in compensatory payments is directly related to the level of unemployment in the economy as a whole, the effect of such payments can be to add strength to "markets" in periods of unemployment. If, when employment falls, payments to farmers are to be expanded, farmers' purchases of goods and services might be kept at a higher level than would otherwise prevail. Provided that the obtaining of funds for such payments does not unduly restrict expenditure in the other sectors of the economy, a net expansion in total expenditures for goods and services could be the result.

The impacts of compensatory payments upon the level of production and employment in the economy as a whole thus depend upon (1) the timing of these payments and (2) their effects upon total money expenditure for goods and services.

Major depressions might be avoided if sufficient action can be taken to strengthen "markets" in the embryonic stages of a depression. The cumulative downward effects resulting from expectations of unfavorable future selling conditions might be choked off. Thus, if compensatory payments were geared to employment in the

economy as a whole, and there was no substantial lag between an anticipated fall in employment and an expansion in payments, some favorable anti-depression effects might be expected.

Changes in prices occur as a result of changes in both supplies and demands. The weakening of "markets" as a whole is, of course, a weakening of demand for all goods and services. An over-all decrease in demand has usually been reflected relatively soon in a fall in farm prices. In such instances, compensatory payments could help in fighting a more severe contraction in "markets." However, the payments are likely to be made once annually—perhaps at the end of the marketing year. Almost an entire year could elapse between the beginning of the over-all weakening in demand and the payments to farmers. During this period an incipient depression could develop into a severe one and the compensatory payments to farmers would have a negligible anti-depression impact.

Changes on the supply side of the picture may impair the usefulness of compensatory payments as an anti-depression device. A widespread crop failure coincident with the beginning of a depression might call for no compensating payments even though the level of employment had fallen.

Even though these payments were well timed, their impacts, while favorable, may be small. Farmers' expenditures for goods and services are a relatively small percentage of total expenditures for goods and services. Industry rather than agriculture is industry's best market. For example, cash income from farm marketings was equal to about 15 per cent of national income during the twenties and thirties. Assuming that farmers spent all of these receipts for the products of industry, an addition of 10 per cent to these expenditures probably would affect "markets" relatively little.

If policy makers are interested in maximum expansion effects upon "markets" per dollar of government payments made to individuals, payments probably should be made primarily to low income wage earners and farmers rather than to farmers as a whole. The analyses of Stone and others indicate that farmers, on the average, had a somewhat lower propensity to consume than non-farmers. Farmers might be largely satisfied to use their compensatory payments to build up their cash balances rather than to purchase goods and services.

The manner in which funds are secured to finance any government expenditure will be important in determining the contribution

of such an expenditure toward the restoration of full employment. The condition necessary for a payment to an individual to add strength to "markets" is that his increase in expenditure be greater than the diminutions in expenditure which are brought about elsewhere in the economy as a result of the transactions involved in making this payment. Even though farmers' expenditures are maintained at a higher level than otherwise would prevail, obtaining funds through some sources could bring about a net decrease in expenditure for the economy as a whole. It is important in getting compensatory payments incorporated into policy that no deflationary tax devices be attached to them. Our experience with the processing tax to finance payments to farmers in the early years of the New Deal should not be forgotten. Compensatory payments should be considered as an item of general federal expenditure and can thus be integrated with the over-all tax-expenditure program.

These remarks are not intended to discourage the use of compensatory payments. Such payments can be very useful in bringing about certain income effects with a minimum of unfavorable impacts upon resource allocation. They avoid altering accepted procedures in rationing goods and services among consumers. While the impacts upon the level of production and employment probably will be favorable, this aspect of compensatory payments tied to forward pricing is relatively unimportant.

DISCUSSION¹

It was noted that the timing of payments within a production year may not be very significant from a counter-cyclical viewpoint. If the direct payments are assured, farmers are likely to spend on the basis of anticipated income, rather than in terms of actual income during the year. As a consequence, annual payments may be sufficient if monthly or more frequent payments are impossible from an administrative viewpoint.

It was objected that the arguments by Mr. Simerl that (a) farmers are basically opposed to direct subsidies, and (b) farmers (and others) will continuously push for higher and higher subsidies are inconsistent. If farmers do oppose direct subsidies on value grounds, they are unlikely to try to increase the amount of payments.

All methods of supporting prices during depressions will redound largely to the benefit of half or less of the total number of farmers. Since the distribution of the benefits is related to the volume of output, the farmers producing most will receive the most. The implication of this argument was

¹ No attempt is made to identify the source of ideas brought out in the discussion since the discussants have had no chance to see the material included.

that other programs directly related to health, nutrition, housing and education were required if low income farm families were to be benefited by a farm program.

The use of direct payments is likely to constitute a disguised export subsidy. This will presumably be true if output is larger as a result of the price support program. If output were no larger, exports would be the same. Direct payments have the advantage, compared to market price supports, of encouraging domestic consumption and reducing the volume of "surplus" which may be stored or exported.

The Steagall program was presumably designed to provide time and incentives for adjustment of agricultural production from war to peace conditions. Within the spirit of this program, payments might be made conditional upon farmers making certain necessary production adjustments. If this is done, direct payments are the only feasible method of meeting the Steagall commitments.

RECENT DEVELOPMENTS IN ECONOMIC THINKING*

L. JAY ATKINSON¹

Department of Commerce

DURING the war a great deal of economic research was stopped, especially research developing traditional economic theory as we usually think of it. Nevertheless, advances in economics did not stop; in fact, they may have been somewhat accelerated. One of the principal things that happened was that economics was broadened. This came about in two ways: in the first place, the problems which we faced were in considerable part problems that had not been satisfactorily and systematically faced by economists before. Then, as in the past, economists set to work on these current problems. The result was a broadening of economics particularly in the field of business cycle problems. The advances which have been obtained are not strictly war products; they represent the cashing in on the research which was inspired by the depression problems.

In surveying the development of economic thinking, I have decided against including something from the many fields in which economics has been advancing and instead concentrating upon a few central ideas that have developed too recently to have been incorporated into teaching but which now are ready for inclusion.

The method of exposition to be followed is to approach these developments through some economic facts which have been influential in the development of the new ideas. Next, I will touch briefly promising developments and then mention a few new ideas in international economics and finally discuss developments in economic dynamics under three headings—aggregate income approach, budget building, and business cycles. If there is a theme to this paper, it is that the developments in this last broad field, i.e. dynamics, are the most important, the most substantial and that accordingly it is here that our teaching is most in need of revision.

Before getting into the economics developments proper, I wish

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¹ The views expressed in this paper are the writer's own and do not necessarily represent those of the Department of Commerce. The writer is indebted to E. Lloyd Barber of the Bureau of Agricultural Economics for valuable suggestions.

to say something about the importance of what may be called depth in economic training. In economics, as in some of the physical sciences, it is extremely important in the training of a student that he acquire a certain depth of understanding of theory. Sometimes, students begin to acquire this in undergraduate school, but more often it is reserved for graduate work and is usually acquired through what is often called a drill course in basic essentials of economic theory. Once a student acquires this understanding or discipline, he has a usable framework of reference with which he can, on his own initiative, tackle new fields and broaden his knowledge in various directions to a considerable extent. Furthermore, if thrust into a new and unfamiliar field in a job on which he is hired, he is able to orient himself to the problems of that area.

On the other hand, a student who has the misfortune to miss being subjected to such a drill course, fails to acquire the depth in his school training; for some peculiar reason, it is extraordinarily difficult to acquire this depth by his own efforts. Even broad reading of carefully selected material usually fails to bring this understanding—the pieces in the economic puzzle just don't seem to fit together.

Possibly, it is unnecessary to mention the other extreme, the student who becomes so enamoured with economic theory that he can never face real problems, but tries to attack each problem with due reference to the theoretical implications involved but with utter disregard for other considerations, which are often of compelling importance.

In approaching recent developments in economic thinking, a convenient method is to consider some important recent facts which have shaped the direction of economics. The reason why such an approach is an appropriate one is best illustrated by considering the nature of economic theory. The purpose of theory is to solve problems and this is its only justification. Since the problems which arise in the economic world are always complicated by special circumstances which make solutions impossible on a realistic basis, the procedure of theory is to simplify the problem and attempt a solution piecemeal. This involves making certain assumptions which contain some of the important elements of reality. A problem arises when the facts change sufficiently so that the old assumptions are no longer meaningful. This has been happening in economics. The only solution is to develop new theory which is aimed more

directly at these new problems. Thus, economics, if it is at all alive to the problems which our society faces in the economic realm, must be influenced and directed by economic developments themselves and be continuously oriented by the major facts with as little lag as is practicable.

The period which has elapsed since 1929 has been filled with problems not intensively investigated by economists prior to that time. The economic theory which had been elaborately developed provided a background but not a handhold with which to grasp the problems which have demanded solution—in fact, economics didn't give us even approximate answers. Fortunately, theory is not static. Economists have developed new theory attacking the problems with which the economy has been faced and in considerable part abandoning the problems about which economists were chiefly concerned before the great depression. Consequently, economics has not broken down under the stress of the new demands. Instead, it has taken a new tack. We have moved from Marshallian analyses of segments of the economy under the assumption of fully employed resources to a general approach to the pressing problems which arose and demanded solution. These problems are centered about the prevention of unemployment or—stated in positive terms—the maintenance of full employment of economic resources.

The current approach to the general question of employment, interest, and money is being made in terms which bear a marked resemblance to those used by the late John Maynard Keynes. Even those who disagree with most of Keynes' policies accept his reformulation of the problem of economic stability. The widespread influence of Keynes is illustrated by a prominent Keynesian with a statement that is particularly appropriate for this discussion, "Finally, and perhaps most important from the long-run standpoint, the Keynesian analysis has begun to filter down into the elementary textbooks; and as everybody knows, once an idea gets into these, however bad it may be, it becomes practically immortal."²

In the past two decades two important facts have shaped and redirected economic thinking. The first of these is the course of the great depression which began in 1929. It was not so much the performance of the economy in 1930-31 which made such an impression on economists. We had experienced severe recessions before,

² P. A. Samuelson, *Econometrica*, Vol. 14, No. 3, p. 189, July 1946.

and we had developed explanations for them—they were traceable to certain price and wage rigidities and represented a temporary departure from a full-employment equilibrium which was not quickly restored because of frictions.

The real shocker was the performance of the economy between 1932 and 1940 including the short-lived partial recovery of 1937 which never drew all of our resources into use. The failure of the economic system to return to an approximately full employment equilibrium shook economic thought deeply. In fact, the assumption of equilibrium at full employment and the reasons why it tended to be established rapidly became untenable, and the explanations of unemployment and depressed markets grew increasingly absurd. These older ideas about depressions and their causes were not actually disproven. Instead, the course of economic developments undermined them at their weakest point—the assumptions on which they were based. As the assumptions became inappropriate the conclusions became unacceptable as explanations of depressions and unemployment. This unsatisfactory state of affairs was not immediately remedied by the emergence of the modern investment-savings theory of income determination, but a beginning was made by Keynes who presented the idea that equilibrium may be established at less than full employment and that there may be no tendency for full employment to be reestablished. The idea was basically so simple—and in view of the sustained unemployment—so obvious that there is some danger that Keynes was overeager to show the shortcomings of the previous analysis.

The second important fact which has shaped and redirected economic thinking arises out of the performance of the economy since the outbreak of war. Resources have been fully employed for a period of nearly six years. Furthermore, the war boom which developed in 1941 was stabilized as long as the war lasted and for about a year afterwards—a feat which few economists regarded as at all probable. A few facts about this accomplishment deserve mention:

A. The war budget was huge—in dollar terms about 100 billion annually. Taxes were not raised sufficiently to prevent a large inflationary gap—which in itself is a new term that developed during the war period.

B. The elasticity of production was far greater than economists had thought. In fact, the people who were nearer right on this score

were the general public and some of the popular writers. Without quoting the well worn statistics, the accomplishment in general terms is that the war production, which was greater than we or our enemies had thought possible, was produced without reducing our living standards. In other words, the war production was obtained from resources which were idle at the time of the outbreak of the war.

C. The elasticity of production was an important link in the successful control which we obtained over our economy. The control was not merely price control exercised by OPA, but included WPB measures, wage stabilization, and subsidies. The control which was exercised was more detailed than had been attempted previously in this country but not as detailed as economists thought would be needed to do a thorough job. On the whole, economists underrated the effectiveness of control.

Possibly, a postscript should be added about what happened in 1946. Although it is too soon to draw conclusions most economists except for the influential minority who felt that any control was undesirable, feel that controls were dismantled too rapidly, and that a large part of the benefit from price control is in danger of being lost.

As a result of the four-year period of excessive aggregate demand which was rather obviously brought about by governmental fiscal policy, a great deal of interest has arisen in the possibility that if the government can provide prosperity and insure jobs in wartime, does it not owe that much to citizens in peacetime to provide them with an opportunity to work. This feeling has been strengthened by the avoidance of mass unemployment in the first year after the war during which war workers and veterans were absorbed rapidly into civilian employment.

The reasoning of the public on this matter may not be sound and it is not based upon a full awareness of the differences between war and peace production, but the conviction is strong and one to be reckoned with as a political force, and if it is basically correct, it is likely to be particularly important.

Promising Developments

The first of the promising developments in economics is called the probability approach to the statistical treatment of econometric problems, and some recent work in this field associated with Haa-

velmo is even more formidable than that title suggests. In the past, the main idea has been to calculate the so-called errors involved in the solutions which are obtained. Thus, in the formulation of an economic problem, provision was made for calculating an answer and a probability that the answer is within a given range of the true answer.

~ In recent studies, Haavelmo and others show that an acceptable and valid probability theory applying to economic variables requires the establishment of many simultaneous structural relationships between these variables. This leads to entirely new procedures for estimating values such as elasticity of demand, for example. These procedures as originally worked out were far more complicated than conventional regression analysis, but Girshick and Haavelmo have worked out simpler methods of computation which are being presented at Atlantic City, next month.

2 The second promising development to which I wish to give passing attention is called the theory of expectations. It has been conventional in economic analysis of the behavior of the firm to abstract from uncertainty by assuming that the entrepreneur has perfect knowledge of the future selling price of the product, future purchase prices of the productive factors and the technical coefficients of production. The existence of lack of perfect foresight in each of these instances creates a problem of uncertainty. The entrepreneur is not able to forecast future prices with even a high degree of accuracy; nor is he able to estimate without error the rate in which productive factors can be transformed into product.

Several writers in recent years have endeavored to analyze producer behavior with uncertainty present. The method has involved an assumption about the nature of the entrepreneur's anticipation of the uncertain elements which he must consider in his planning.

The simplest assumption is that the entrepreneur has one estimate of each uncertain element—product price, factor price, input-output ratio, et cetera—that he regards this estimate as certain, and acts to maximize the expected discounted net revenue over the time period for which he is planning.

A more elaborate assumption is that the entrepreneur's estimate takes the form of a series of outcomes, each of which is considered more or less likely. The estimate can thus be conveniently represented as a probability distribution. An analysis of his behavior, in

this case, must consider his aversion or preference for risk in maximizing net revenue over time.

A third assumption is that the entrepreneur's estimate is in the form of not one but a series of probability distributions. He does not have complete confidence in the probability weighting he has given the several expected events, and attaches a probability value to the entire distribution. Thus, we have a probability distribution of probability distributions.

This is a field in which the hypothetical assumptions are well in advance of empirical research. There is a need for research that will provide data on the nature of producers' anticipations, and the manner in which planning is carried on in the face of business uncertainty.

Fortunately, the third of the promising developments is a little more concrete than the previous ones and not so difficult to explain. It is a contribution to economic thinking resulting from the application of more powerful and objective sampling techniques to the collection of economic data. It has long been recognized that most of our key series in agriculture, commerce, and labor, are based upon subjective statistics not embodying the latest sampling methods. A lead in remedying this situation is being taken by the Bureau of the Census, and the Bureau of Agricultural Economics is beginning to collect data from a carefully designed sample which in time should replace many of the series now based on mailed questionnaires and provide us with additional information not now available.

A related development in statistics is the collection of data which are tailored to fit economic concepts. This has affected economic thinking not only by furnishing the basic data desired but also by requiring a clarification of the concepts themselves. For example, the collection by the Census of monthly estimates of the labor force has stimulated a redefinition of employment and unemployment. In order to add precision to these concepts, a new category had to be developed showing those with a job but not at work. In several months during the past two years, this group has been more numerous than the total unemployed—i.e., those without a job.

Developments in International Economics

The swift pace of developments in the international field is so striking that we must be careful not to discuss events merely be-

cause they are important developments but to restrict discussion to those changes which have had an important influence on economic thinking. One such development which is important from both of these standpoints is the revival of interest in the expansion of multilateral trade, which is being spearheaded by the United States. In the decade prior to the war, ever-increasing trade restrictions seemed to be throttling international trade and limiting it to special arrangements between certain blocks of countries. Thus, the impetus which has been given to promoting international trade represents a sharp reversal of trade policy. The general aim of the United States and the countries which are cooperating in the trade expansion program is broadly similar to that which economists have traditionally espoused, but the specific measures are only partially orthodox; a revision of the international gold standard and a shift in the adjustment of individual countries to international developments reflect some change in the economists' conventional ideal of free trade. These will be discussed briefly in turn.

The United States is taking a lead in obtaining a relaxation in barriers to trade by means of reciprocal trade treaties and the most favored nation clause. The international gold standard which was regarded by most economists until recently as an aid to trade is not to be restored. There is no disagreement that it did not work in the past—and the prevailing opinion among economists is that it is unworkable or at any rate, undesirable, although some dissent on this point. But in any case, it is dead.

Gold is not to be demonitized, however, and under the international plans which are being worked out, it will play a large role, but adjustments will not be worked out as would be required if all nations were on the gold standard. In particular, the deflation which was under some circumstances required and which often resulted in prolonged unemployment rather than a fall in prices, will not be mandatory for nations which develop adverse balances. On the other hand, the evils of competitive exchange depreciation are to be avoided by use of the International Monetary Fund which is designed to fix after consultation with the individual countries the postwar structure of exchange rate. Although the aim is to promote stability of exchange rates, provision is made for an orderly adjustment of exchange rates when needed to correct a fundamental disequilibrium. The Fund also aims to aid members to achieve balanced trade without resort to deflationary policies—

thus correcting a fatal weakness of the gold standard. Finally, the Fund is to aid in removal of foreign exchange restrictions which hamper world trade.

One of the definite departures from economists' earlier notions about free trade is the increasing emphasis upon achieving stability in international trade by specific international agreements. Now that most major exporting countries are supporting the price of agricultural products, international commodity agreements on food and agricultural products are being worked out to prevent unsettling price changes from disrupting world raw material markets. In addition, Britain's bulk purchasing agreements are to be part of the immediate postwar scene.

Another threat to stability has not been resolved—that is the internal stability of the separate countries, particularly the United States. Because of the importance of the United States market, world trade is closely geared to economic activity in this country. When the United States is in full production, the demand generated for imports is very great, but when U. S. production is curtailed, the import market collapses—a collapse that the world fears and one which they feel that we have not accepted the responsibility of preventing. Accordingly, they say that it is necessary for them to make provision for protection against this catastrophe to world trade.

Another aid to the development of postwar commerce is the International Bank, which has been founded in order to make loans for reconstruction and for the development of backward areas, but the theoretical implications of the bank are less interesting than in the case of the Monetary Fund.

Aggregate Income Approach

One of the new trends in economic thinking is the emphasis placed upon measurement of the total output of the economy. In a narrow sense, this new approach is not economic theory at all, but merely an accounting process for the economic system as a whole. It is arranged, however, to facilitate analysis of changes in the entire economy which are important for economic theory. In a broader sense, the new emphasis represents the concentration on the problem of maintaining aggregate demand—sometimes called macro-economics as distinguished from micro-economics. On the one hand, the aggregative approach is related to the business cycle

problem which will be discussed below and on the other, it has given rise to model building, in which national budgets are prepared, usually under alternative assumptions concerning fiscal policy.

Economists have long been familiar with the national income concept which has been used as a measure of economic activity. During the war, there was a tendency for economists to use the gross national product or expenditure as an over-all measure of the output of the economy. These estimates are prepared quarterly and presented in the Survey of Current Business. Since the national income is familiar, it is convenient to explain the gross national product by comparing the two concepts.

The national income represents the sum of the payments to the factors of production or of the earnings of all persons and property used in production. It includes (1) total wages, salaries, and other compensation of employees, (2) interest and net rents received by owners of property used in production, (3) net income (profits) of proprietors of all unincorporated enterprises, (4) dividends, and (5) profits earned but not paid out by corporations.

If to the sum of national income is added depreciation and accounting charges as well as taxes paid by business, the result is an estimate of gross national product. It is a gross estimate of the output of the economy because it does not include an allowance for depreciation and depletion and because it includes some double counting; that is, some of the services of government, such as fire and police protection are aids to business production and should not be listed separately since they are included in the estimate of business output.

A second way of estimating gross national product is to estimate directly the total value of private output of goods and services including any net change in the physical volume of inventories and to add to this an estimate of government output which is made by assuming that government output is worth what it costs.

No allowance is included in gross national product for the double counting between private and public output which was referred to above. If a good estimate were available of the aid rendered to business by the government, its subtraction from gross product would render a better estimate of the output of the economy. The method used in estimating the national income is to assume that government aid to business is equal to business taxes paid. This is a very simple

rule, but it is also a very arbitrary one and it can and has in recent years resulted in some rather large errors in estimating the output of the economy. There is no attempt made to provide aids to business equal to the taxes collected from business. Thus during the war, business taxes were sharply higher, and according to the method used for estimating national income, the higher taxes brought larger deductions from the national income. The result was that the rise in national income during the war years understated the actual rise in output. In the current year (1946), however, the lower business taxes will have the opposite effect—increasing national income estimate—although no actual increase in output of goods and services is associated with the tax reduction.

Model Building

The development of the national income and product tables has facilitated thinking in terms of the economy as a whole and has led to model building. The individual items shown can be estimated for future periods by making certain assumptions. Then the effect of alternative fiscal policies upon the level of aggregate demand can be calculated. At present, bitter disputes are in progress concerning the conclusions derived from such model building.

Business Cycle Developments

Possibly, the greatest advances which have been made in economic thinking in recent years fall within the general area of business cycle economics. This is not surprising if one considers the general history of development of economics—that is, the close relationship between economic problems and economic thinking. Certainly the biggest problems facing the economy are those arising out of the great fluctuations in business activity which seem to plague a modern industrial society. As has happened before, the solutions which are being developed show some lag from the time when the problem became acute. Thus, when the great depression began in 1929, economists were unprepared for meeting the problem, and as I shall indicate the general solutions which economists favored at that time, are now regarded as singularly ineffective and even inappropriate.

There has been a very rapid change in the point of view of economists which is paralleled in part by the general public concerning the nature of the cycle problem and the steps which should be taken

to avoid the great swings in business activity and the paralysing, demoralizing unemployment which is associated with the down-swing. There is not yet general agreement on these ideas, yet the degree of agreement is rather large and the area of controversy smaller than is usually supposed. A simple way to indicate the broad outlines of the new thinking on these matters is to state the present views as a series of propositions and to contrast these with views which prevailed some ten to fifteen years ago.

The ten propositions which follow command wide support from students of the business cycle, although it is perhaps unnecessary to add, not all economists agree upon them. In the exposition both of the area of agreement and of the area of disagreement, attention is focused upon representative views to the almost complete neglect of extreme positions even though the latter are important, particularly because of the attention which they receive in non-technical publications.

1. Full employment is not a natural equilibrium point toward which the economy tends, but is an unusual situation which is reached only occasionally and which often seems an unstable position. Rather equilibrium may be reached at a position considerably short of full employment.

2. The evils of depression and mass unemployment demand a solution. A government will have to be able to show that it is making a positive effort to solve these problems in order to survive.

3. We can prevent depression. There is rather general agreement on this point by students of the business cycle regardless of their point of view. The public has arrived at substantially the same conclusion which, however, is expressed in terms of jobs. When mass unemployment threatens, the unemployed as well as others will demand that the government provide jobs, and there will be a preference for real jobs not work relief.

4. As yet, we have not taken steps to reduce the severity of the swings of business activity although we have given recognition to the problem in the creation of the full employment commission.

5. The major immediate cause of fluctuations is the change in the aggregate demand of individuals, business, and government. Equilibrium is unstable over a wide range; that is, declines from a high level of business activity are not quickly corrected, but tend to become cumulative for a considerable range and subsequent gains in business activity come about slowly and gradually. As a

result, the average level of utilization of resources is well below full or optimum by any reasonable definition.

6. Fluctuations will tend to become larger and unemployment greater as income rises and the proportion spent on consumers' durables and producers' goods increased, for it is in these areas that the unsettling forces are found.

7. Depressions may last long periods of time. Low demand fails to attract investment and to draw idle resources into employment. As a result, the prospects for profits remain dim, and recovery is delayed.

8. The government has the major responsibility to even out the cycle—a responsibility which it cannot shift to any other group. Business cannot be expected to take this responsibility and it is idle and deceiving to attempt to rely on them for this task.

In fact, business as well as individuals, will find it prudent to take action which will tend to aggravate rather than damp the swings in demand and it is rather foolish to advise them to do otherwise. For example, when a recession threatens, the individual firm will find that the reduced demand for its output is most appropriately handled by reducing expenditures.

9. The Government must stabilize aggregate demand. Government activity has become so large that it cannot be neutral in its effect regardless of any moderate reduction which may be considered desirable. Accordingly, the government's effect must be positive. That is, the government must adopt countercyclical, fiscal-monetary policy which will even out the great swings in demand.

10. Individual and business demand is subject to wide swings. In broad terms, the government must arrange its activities to maintain aggregate demand on an even keel. More specifically, the government must regulate its taxation and expenditures so as to even out the cyclical swings.

With these ten propositions, we have about exhausted the area in which there is any tendency for broad agreement and from this point on, we must recognize a split between the two major groups of business cycle students. Although there is agreement on the nature of the major problem and upon the general means to be used, there is sharp division on the specific measures and particularly on the degree of each which is required or desirable.

Before going into this area, let us pause to see some of the major changes which have been made from *say, fifteen years ago*. There

are at least two major casualties from the orthodox view: First, the balanced budget is out. This long-venerated canon of public policy is rejected by both major schools of cycle theory. It is not thoroughly discredited in the public view and it is still current in financial publications and other sound quarters, but the trend of events may force reform on this point if the economists go unheeded. Second, the classic economists' explanation of the depression problem was that a major cause of depressions was the development of certain rigidities in the economy, chiefly wages and prices which prevented rapid adjustment to the onset of a depression. What was needed, the reasoning went, was the introduction of flexibilities into the price and wage structure. Let's turn to these points in the order given.

Shift in Budget Adjustment

When the great depression began in 1929, and for at least four years thereafter, the policy of the government of meeting the depression had the general support of economists. A keystone of this policy was that the budget must be carefully and meticulously balanced. A deficit of even a few hundred million was regarded as a very serious failure of government policy toward business and the public generally. Let me make clear that this policy was accepted by both major political parties. In fact, any other approach was unacceptable even to labor groups threatened with the growing menace of mass unemployment.

Without going into the reasons why the shift in thought occurred, let us turn to the view which prevails among students of the business cycle today. If the aggregate demand is excessive, the government should have a surplus of receipts over expenditures in order to curtail demand and to prevent a boom. On the other hand, if aggregate demand is deficient, then the government should have a deficit of tax receipts in relation to expenditures. This will stimulate demand of individuals and business. At this point, there is a double disagreement among economists.

The first relates to the probability that a deficit will be required. This disagreement is behind the rather futile but acrimonious dispute about the mature economy. One group maintains that we have reached a mature economy status and that to get anything like full employment of resources in the future, large and regular budget deficits will be required. The other wing is busy laying the bogey

of economic maturity. Apparently, the people on the two sides of the controversy, if confronted with a given demand situation, would nearly always agree whether a deficit or a surplus was needed, for they both accept the responsibility of the government to adopt a compensatory fiscal policy.

But the second disagreement is somewhat more fundamental; it is concerned with the means used to achieve budget deficits and surpluses and with the importance of certain monetary-fiscal reforms.

The first point of view—the conservative, we will call it—is that the compensatory fiscal policy should be brought about primarily by changes in tax rates rather than by changes in government expenditures. They point out that the demand for government expenditures does not vary inversely with aggregate demand and that to make changes in expenditures in order to stimulate and to repress demand will result in wasteful spending and boondoggling projects.

By reducing tax collections, the spending of individuals and of business can be quickly and effectively stimulated and the increased income remaining in private hands can be spent in accordance with the demand for goods and services, thus avoiding an arbitrary decision by the government which has not demonstrated itself to be so wise in such matters. When opponents of this point of view argue that the reduction of taxes will not be sufficient to stimulate demand if a recession is underway, they reply that if necessary the government can collect negative taxes, that is, distribute money in order to give a fillip to demand. Furthermore, by providing for built-in flexibility in tax collections, the change in the budget can be accomplished more quickly than by increasing government expenditures. Some of those in this group wish to reduce the total amount of government expenditures over the long period and give a rather high place to monetary reform, generally of the 100 percent money type and a few of them retain some interest in central banking regulation of the rate of interest and open market operations. The confidence in central banking regulation, however, is considerably less than a decade ago—it is more effective in controlling booms than in ending a depression. As a measure of stability there is some preference for using a general index of prices rather than the full employment criterion.

The second point of view—the progressive or radical, depending

upon whether it appeals to you or not—is that both taxes and expenditures should be varied in order to get the compensatory effect needed to stabilize aggregate demand. Some stress the expansion in government spending, pointing to great needs which only the government can fill such as low-cost housing, hospitals, schools, roads, city planning, and regional development authority, all of which can be planned to vary inversely with business activity and without wasteful expenditures. In general, this group places less emphasis on monetary reform and central banking policy and sees stability in terms of full employment rather than price stability.

Now that we have discussed the changed point of view of economists toward government fiscal policy, let us look at the change in regard to the importance of flexibility of prices and wages in order to counter the forces of deflation. Neither of the two major groups of economists feel that we can expect to rely upon obtaining more flexibility as a major pillar in meeting shrinking aggregate demand. The one group points out that the flexibility needed to reverse a deflationary development is so great as to be unfeasible to attempt to obtain and, even if possible, it might not be desirable. The other group feels that price flexibility is unattainable and that wage flexibility is undesirable. When deflation threatens, they say, wage rates should be maintained as this will tend to maintain the income of workers who do not lose their jobs. This favorable effect is considered to more than outweigh the loss in employment which may be sustained because wage rates are not lowered.

Now for an area in which thinking has not solidified—a special problem arising out of the full employment situation. Although there is some difference between the methods used to obtain full employment, both major groups of students point toward full employment or its equivalent as an objective and both feel that with the adoption of some specified measures that the maintenance of aggregate demand at a high level is a practical goal. But at this point, we encounter a real dilemma: If we assume that the Government will faithfully discharge its responsibility for sustaining total demand at a high level, then what will happen if business believes that the Government will underwrite a full-production economy and accordingly decides that since business is practically guaranteed to be good that they should raise prices in order to exploit this guaranteed market. Similarly, what would happen if labor is dissatisfied with the wage rates obtained in a full-employment economy and should

seek to obtain higher wages? The danger in such a situation of developing an inflationary price spiral is immediately apparent, but nobody has come forward with a satisfactory solution to this modern dilemma—possibly, we will hear it discussed at length in the years ahead.

This rounds out our survey of recent developments in economic thinking and it reveals important advances which should be incorporated into the teaching program. The shift which has taken place in economic research from micro-economics to macro-economics should be paralleled in part by adjustments in the college curriculum. One such adjustment which might improve the training of an agricultural economist is to offer him a course in business cycles, even at the expense of some work in, say, agricultural prices or money and banking. But such decisions as this are the main purpose of the discussion which is to follow.

THE ELEMENTARY COURSE*

L. BLUM

Iowa State College

FROM time to time an article may appear in the professional journals dealing with the problem of the elementary economics course. For the most part, however, these articles create no heated controversy. There are no Marshalls or Keynes in the field of economic education. In spite of the tremendous strides in our economic science during the past twenty-five years, the elementary course continues to follow solid neo-classical dogma, sparsely flavored here and there with Chamberlinian or Robertsonian digressions on imperfect competition. Occasionally one may also find the name of Keynes quoted in vain. But the pattern in all this is unmistakably clear—Production, Distribution, Value and Exchange. These are our benchmarks. Only an heretic would deviate from these “holy” categories.

Textbooks for the elementary student are in part responsible for this pathetic state of affairs. But for the most part responsibility must be shouldered by the men in the profession at large. We have been too pre-occupied with research to waste time developing a body of information that can be easily digested by the lowly student. And yet we naively wonder why our research efforts are not acceptable to the average citizen we intend to serve. We are unable to comprehend the simple fact that policy proposals based on sound research will not be acceptable to economic illiterates, swayed more by emotion than sophisticated analysis.

It has been suggested that my comments be directed toward certain aspects of the first course in economics which might be considered antiquated and consequently could be omitted. Such comments will assume a greater amount of homogeneity in the various “principles” sequences than probably exists. “Principles” do not have the same content in every college or university. Nevertheless, there is a great deal of similarity, as can be noted in the briefs given to such courses in college catalogues and in the marked similarities in the standard texts.

It is my belief that, although some things that are now included in the principles course can be omitted, the problem is primarily one

* A paper presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

of re-weighting the various parts of the course. A rather drastic rearrangement seems warranted in view of the changes in emphasis which have been given to various economic problems.

The weights which should be given to the various parts of the "principles" course obviously depend upon the objectives of this course. Many students will have in "principles" their only exposure to formal training in economics. Others will be exposed to additional training. In any event, we cannot hope to make economists out of our "principles" students. This means that we must indeed concentrate upon "principles," indicating the nature of the economic problem and the *methods* by which it may be solved. A minimum of description of institutions seems implied. And this description should be of institutions that are currently important or are expected to be of importance in the future—not institutions that were important in the 18th and 19th centuries.

Perhaps the most we can do in the "principles" course is to create a different "attitude" on the part of the student toward economics. The typical student comes to college with certain prejudices obtained from his parents or his community. These may favor tariffs, oppose collective bargaining, favor "sound" money, or favor "socialization." But, whatever their nature, these beliefs are strictly prejudices arrived at without adequate analysis. The student needs to be encouraged to examine these beliefs and expose them to whatever economic analysis we can provide in this principles course.

We cannot fit the student into the role of economist. But we can create in him an interest in economic problems and a belief that those who specialize in economics have some qualifications for solving these problems.

To be more specific in my suggestions, let us examine a "typical" course outline. It is frequently built around value and distribution, with international trade, money, business cycles and other things thrown in for good measure. While much of this material will be of value to the student, he infrequently sees how it all fits together. Even the typical student specializing in economics gets only the pieces of the puzzle and finds after a few years of graduate study that these pieces can be fitted together into a set of tools capable of aiding him in economic analysis.

Considerable interest is currently being expressed in what might be called the "national income" approach to principles of economics.

At least one text is available to supplement the standard texts and permit the principles course to be built around the factors determining the size and distribution of the national product. Additional texts will soon be off the presses. Into this approach may be woven discussion of the importance of "markets" in an enterprise economy and the effects of various private and government policies upon markets. Thus the theory of money and fiscal policy plays a role which the student can easily visualize. Labor problems become an important element in discussing the supplies of resources. And the theories of consumer behavior and production can be shown to be of some relevance.

If this approach is utilized, we might omit from the principles course the things we have built around "functional distribution." While the problems discussed under this title of "functional distribution" are important, they are pricing problems—the things priced being resources. The prices of resources are but one of the factors determining personal income distribution. The ownership pattern of resources and the modification in the flow of income imposed by fiscal techniques are also determinants. And, the pricing of resources is of importance in considering problems other than personal income distribution. The whole resource allocation problem obviously cannot be viewed independently of resource prices. And the level of employment is certainly influenced by the prices of labor resources.

Regardless of the approach which is employed—unless our route is via economic history or the history of economic doctrines—we can omit discussion of such phenomena as Gresham's Law, Bimetallism, and even the Gold Standard.

Let's view briefly the subject matter of economics in rather broad terms. For the most part the average elementary student is exposed to micro-statics. At the present time I would say the particular category we have selected is not only an arbitrary one but far less useful to the student than macro-statics, for example.

I am suggesting the following sequence for a course in elementary economics as a somewhat superior approach to the traditional economic quadrangle used so frequently in our teaching. It may be criticized severely for clinging to the concept of equilibrium. However it does have this advantage: it attempts to weave the thread of equilibrium throughout the fabric which constitutes an introduction to economics. And each thread in the analysis leads logically to

the central core of the sequence—an analysis of business cycles. One further advantage may be noted. It permits a complete discussion of the institutional factors to be tied in directly with the analysis, thus making them more meaningful.

What then are the essential elements of this sequence? The course attempts first to divide the economy into several broad markets, namely, the commodity market, the labor market, the savings and investment market and the money market. Without going into detail, some of the essential elements discussed in each of these markets are the following:

The Commodity Market

- 1) The significance and functions of the price system.
- 2) Price determination under various competitive situations.
- 3) The reaction of the firm to prices.
- 4) The allocation of resources by a single firm and among several firms.
- 5) Equilibrium in the commodity market.

The Labor Market

- 1) Labor as a factor of production.
- 2) The production function.
- 3) The determination of wage rates in a purely competitive market.
- 4) The influence of trade unionism, custom, and government on wage rate determination.
- 5) Institutional factors in the labor market.
- 6) Unemployment equilibrium in the labor market.

The Savings and Investment Market

- 1) The consumption function.
- 2) The savings function.
- 3) The investment function.
- 4) The interest rate.
- 5) The role of profits.
- 6) Equilibrium in the savings and investment market.

The Money Market

- 1) The theory of money.
- 2) Credit and banking.
- 3) The Federal Reserve System.
- 4) Equilibrium in the money market.

The Business Cycle

- 1) Inter-market equilibrium
- 2) From statics to dynamics (the cob-web theorem applied to the savings and investment market).

The Control of Business Fluctuations

- 1) Theories of the business cycle.
- 2) Corresponding proposals for their control.
- 3) Taxation and Public finance.

Special Problems in the American Economy

- 1) Agriculture
- 2) Transportation
- 3) Foreign Trade

Primary emphasis in the discussion of each market is placed on the concept of equilibrium in that market. However, after treating the markets under the usual *ceteris paribus* assumptions, an attempt is made to determine whether the markets are mutually consistent with each other. If this is the case, one of the markets is purposely thrown out of equilibrium and the repercussions are traced throughout the remainder of the system.

From an analysis of this sort the student is made to understand the complex relationships and interdependence of the various segments of the economy. He no longer has the feeling, which characterizes many of our present day elementary economics students, that somehow several missing links have failed to tie the content of the course together.

DAIRY MARKETING RESEARCH ROUND- TABLE MEETING*

Leader: R. K. FROKER, *University of Wisconsin*

"A summary of research affecting the market demand for dairy products and an evaluation of alternative public and industry policies for maintaining and expanding market outlets."

This report is being prepared by a drafting committee appointed by Directors Noble Clark of Wisconsin and C. E. F. Guterman of New York. Members of this committee are R. K. Froker, Alan MacLeod, and Leland Spencer. The report in its present form represents an early draft and is presented to stimulate discussion and suggestions for improvement. Because of its preliminary nature it is not reproduced in the proceedings but is expected to be published at an early date. In order to indicate the background against which the discussions of Wesley Bronson and H. Alan Luke were presented, a brief description of the scope and content of the report is desirable. These are as follows:

First, a brief description is given of the changes that have taken place in the dairy industry during the war and the position of the industry at the present time. This description shows farmers' disposition of milk and its utilization in the various dairy products. Data on per capita rates of consumption of dairy products and on purchases for military use and export are included.

Using this bird's-eye view of dairy production and utilization as background, the more important uses of dairy products are examined, one by one, and the causes of changes in their consumption are indicated. Before this is done, the report cautions against thinking of each dairy product as distinct and unrelated to other dairy products and to other foods. It is pointed out that markets are not independent of one another.

The report proceeds to summarize knowledge of the demand for dairy products and make it available to all who can use this information. Separate sections are devoted to fluid milk, cream, butter, cheese, evaporated and dried milks, and ice cream.

Following the presentation of facts about the demands for individual dairy products, this knowledge is brought together in an effort to find out how different circumstances would affect these

* A report presented at the Annual Meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

demands. The effects of (1) changes in national income, (2) price changes, (3) reductions in marketing costs, (4) low cost methods of distribution including school lunch, food stamp and relief milk programs, (5) educational and advertising programs, (6) developing markets and uses for new products and packages, (7) improving quality, and (8) developing export markets, are considered.

The final section of the report had not been prepared in time for presentation at the Farm Economic Association meeting. It will be in the nature of a summary and will make some further evaluation of the relative importance of various public and industry plans for maintaining and expanding market outlets. Particular attention will be paid to the needs for further research work and the direction which that work might take.

A statistical appendix and a bibliography of publications dealing with the consumption of, and demand for, dairy products complete the report.

DISCUSSION*

WESLEY H. BRONSON

Whiting Milk Company, Boston, Massachusetts

In the very excellent report which Mr. MacLeod has given us we have a wealth of information which will help in meeting some of the problems facing the marketing of dairy products. The analysis of the historical developments of the industry in recent years, how the supply has varied and how the dairy products have been used with the changes which have taken place during the war period due to the requirements for military uses presents a picture which has to be studied in looking toward the future. The large increases in manufactured milk products needed for military uses and the development of additional facilities for handling such products such as evaporated milk, powdered milks, will be an important factor in prices for such products in the future. The very large increase which has taken place in fluid milk sales presents the problem as to whether such sales can be maintained. The fluid milk industry has been studying methods by which these high fluid milk sales can be maintained.

The increase in fresh milk sales was remarkable and something which the fresh milk industry never expected. The decrease in butter sales was very large. Will butter regain its place in the diet?

Mr. MacLeod's paper points out in general the importance of income as a factor in the consumption of dairy products, and that there is a material increase from the very low income group to the next higher group which

* A discussion presented at the Annual Meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

points out that a program aimed at increasing the consumption of dairy products by the lower income group would do much to increase the market for dairy products.

The pricing problem is an important one from the standpoint of consumption of dairy products. Butter, for example, today is priced very high compared with the general price level of all commodities having a purchasing power today of about 45 per cent above 1910 to 1914 which has not been duplicated in the past for any length of time. The fluid milk price is not particularly out of line with the general level of commodity prices and other foods, but, it is high compared with the prices of dairy feeds. The November milk price in the New England milkshed in its ability to buy grain is about 20 per cent above the normal relationship and during the past three years milk prices to farmers have been relatively high compared with grain cost and that has had its effect upon our production picture this fall. Thus far there appears to have been little effect on milk consumption of the prices at which milk is selling in the market.

The cream situation from the price standpoint is also relatively high due to the high level of butter prices, and cream has suffered severely in sales due largely to the price at which it is to sell. From 1939 to the current time, the price of cream at Boston has gone up about $2\frac{1}{2}$ times, the price out of the store has doubled, while the sales have decreased about $\frac{1}{4}$. As Mr. MacLeod has pointed out, the price is a very important factor in cream sales.

The section of the report dealing with marketing costs is a very important one and a large amount of information has been developed on this subject which can be used to advantage in future problems. The development of every-other-day delivery has been a very important move in retail milk distribution because it makes possible the carrying of larger loads and thus delivering milk at lower cost.

From the country standpoint, however, it would appear that the scramble for supply has led to much duplication of plants for the handling of milk supplies. That has happened in New England and also in many other parts of the country. Much of this may be the result of the operation of Federal Milk Orders and the price returns possible from certain types of manufactured products. It has been possible to obtain from the fluid milk market sufficient money to maintain a competitive blend price and at the same time make enough extra from manufactured products to pay higher prices thus making it profitable to put up additional plants and haul milk greater distances.

I am very much interested in the suggestions in regard to developing low cost methods of distribution. In the fluid milk industry dealers are always looking for lower cost methods. The suggestion for volume discounts has been one which the industry has considered, and the outstanding development was that the so-called Elwell Plan of volume discounts in Minneapolis. One of the problems of volume discounts that distribution has is the accounting for the milk by the route driver. The tendency is for all the milk to be sold at the discount price which if carried through to a

logical conclusion would result in there being no discount for volume. Also stores selling milk could not operate on a volume discount basis due to the nature of the store operation.

I was very much interested in the discussion of store sales versus retail wagon sales of milk. The paper suggests that high wagon-store differentials bring larger consumption of milk than would otherwise occur. Does the per capita consumption of milk in various cities prove this? Boston has large retail wagon sales compared with New York or Chicago. Is the per capita sale of milk in New York and Chicago higher than Boston? Will not a study of spreads on retail milk between the price paid the producers and the price at which the milk is sold show retail wagon spreads are very high in areas where store sales are an important factor compared with areas in which store sales are not so important? A comparison of the spreads in Boston and Philadelphia with New York and Chicago will, I believe, demonstrate this point. I think also if we check the prices at which milk is sold to stores compared with the producer price it will be found that gross spreads are not materially different where store sales are an important factor compared with places where store sales are not so important.

Another suggestion was the possibility of use of milk depots. I think the information regarding the operation of the Relief Milk Programs during the late 30s would be helpful in considering this possible method of getting milk at a lower cost. During the period 1938 to 43 there were in the Boston market relief depots from which milk and other agricultural products were distributed. Milk was delivered to those on relief and to those on W.P.A. at a price of around 5¢ to 6¢ per quart compared with the normal price out of stores of 12¢. Do we have anything to indicate that the consumption of milk increased as a result of this type of operation? We do know that the store sales of milk declined as this program came into operation. The general feeling in the industry is that consumption did not increase, but, rather, we had a shift from the stores to the depots. It is a fact that those who were entitled to relief milk did not purchase the quantities which they were entitled to in many cases. At the high point in Boston, December, 1939, 13½ percent of the Class 1 milk was being sold through these relief depots and many people obtained milk who ordinarily would not have been entitled to milk. It is doubtful if when all costs are considered including the reduced price at which the farmer sold his milk that milk was distributed at materially lower cost than through established store outlets.

The school lunch program as a method of increasing the distribution of milk has now been in effect long enough so a detailed study could very well be developed on the question of price of milk compared with consumption. Under the program, contracts are made with distributors for delivery of milk to various schools under the competitive basis as already outlined. The amount required to be delivered at each school is based on one-half pint to each pupil. However, the experience of our company is that on the average deliveries are only about 40 per cent of the amount which the school would take if all pupils took their quota of half-pints. This percentage varies widely between different sections of the city and different income

groups, with pupils from the higher income groups taking a large percentage of their quota than in areas where the income is lower. Whether this is due to the inability of families in the low income group to supply even 18¢ a week for milk or whether they just don't want the milk anyway, is a question that I think could very well be answered by proper research. There is no doubt but what a program of this kind carried through where all pupils use the milk they are entitled to would be an important one in the way of developing milk consuming habits, but, thus far there is considerable indication that pupils are not using the quantity of milk that they are entitled to use. The shift from non-Federal to a Federal program does not appear to have increased consumption of milk materially in the schools. Certainly we need more knowledge of the program and its operation.

The Food Stamp Plan, as it applied to milk, operated only a short time, but there were some indications that some coupons were used to purchase other commodities than milk. The handling of these coupons presents a real problem in seeing that they are properly used.

Some other factors in this whole dairy marketing program, particularly from the standpoint of fresh milk, is the question of relationship of store price of fresh milk and store price of evaporated milk and its influence on the consumption of fresh milk. In the Boston market when butter prices were relatively high compared with the general price level and thus cost of evaporated milk was relatively higher, the spread between the evaporated price and the price of milk out of stores was as low as 1¢ a quart. In the 1935-39 period it rose to nearly 3¢ a quart. This was a period when butter prices were relatively low while fluid milk prices were being maintained at a level which was somewhat high compared with general prices. Milk orders, particularly in 1938 and 1939 in our Boston area at least, held milk prices high compared with prices of manufactured dairy products. Apparently, the spread now is about 3½ cents per quart which again is about in line with the 1935-39 situation even though butter prices are relatively high. Milk distributors are very much interested in this question of relationship and in its effect, not only on milk sales, but also on cream sales.

In conclusion I would like to add to the problems which have been presented by Mr. MacLeod, a few others in the dairy marketing field which might be explored.

First is the question of pricing milk under Federal Milk Orders and the desirability of determining a sound price policy not only from the standpoint of the producers but also from the standpoint of the distributor and consumer. With the possibility of using Federal Order as a method of holding high price levels it will be hard to convince producers that they should not use them for that purpose. Errors made in the pricing policy under these Orders may be very much more important in their effect on production and consumption than any of the items which have been covered by the paper under review. There will, no doubt, during the period ahead be more tendency to use milk orders to support producer requests for price than to meet the problems of distributors' or consumers' ability to pay.

Second, we could to advantage develop the importance of full employ-

ment and high income as a most important factor in maintaining consumption at a high level. It appears to many that this problem is the most important one in maintaining high consumption levels on dairy products.

A third might be the problem of price support on dairy products which may be required. What research can be carried on under this heading and what facts can be developed will give us sound programs? What method should the Government follow in price support? Compensatory payments to farmers, production control, Government dumping and what would be a sound price plan?

Much information has been developed and much more can be developed to give us a sound dairy marketing research program. I am sure that milk distribution is very much interested in this whole question and will do everything in its power to make available to research groups information which will help to give the facts needed.

DISCUSSION*

H. ALAN LUKE

Cornell University

The foregoing report by Doctors MacLeod, Spencer and Froker presents a rather comprehensive summary of the information we have so far accumulated concerning demand for dairy products. Further discussion might be spent more profitably, I believe, in examining the significance of such information rather than the information itself.

The subject of demand is extremely popular among those who produce and distribute dairy products. Farmers and dealers alike have observed that prices are high and profits good during periods when demand is increasing rapidly. Active demand has come, therefore, to be almost synonymous with profitable business conditions. Experience has shown, however, that the accompanying prosperity is usually short-lived. Demand reaches a peak and slackens. Prices decline and profits disappear. This combination of circumstances serves once again to emphasize the importance of demand, this time by its absence.

During periods of declining prices, producers are especially anxious to study the problems of demand and if possible undertake steps to remedy any maladjustment they see. As pointed out by MacLeod, Spencer and Froker, indications are that we are now entering a period during which demand for dairy products may be expected to increase at a declining rate, or perhaps even decrease somewhat. Interest in possible methods for improving demand may therefore be expected to mount.

It is important at this point that we be aware of the possibilities for contributing to the welfare of the dairy industry through the study of demand. To the extent that hopes for improvement are based upon the pos-

* A discussion presented at the Annual Meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

sibility of increasing demand rapidly enough to raise prices above the average costs of production, they are fallacious. Such increases in demand bring unnatural prosperity, and provide a false stimulus to production. Returns below the cost of production are subsequently to be expected, as production becomes too large, and demand recedes. The net gain, if any, which results from this cycle is likely to be small.

Neither is a gradual, but more permanent, increase in demand, a source of great promise for unearned prosperity to the dairy industry. Any ordinary increase in demand is accompanied by an adjustment in production at both the extensive and intensive margins, which tends to advance costs along with prices. Many farmers and businessmen are in a position to shift easily into the dairy business, if it would be advantageous for them to do so. The economic gains to producers which result from this process should be looked upon more as fortuitous rather than as steady sources of income.

It is possible, however, through a better understanding of demand to make a more permanent contribution to the welfare of producers, distributors and consumers of dairy products. This may be realized first through reducing costs of production and distribution and by adapting both more fully to the desires of consumers, and second, by contributing to a better understanding of the operations of our economy.

Concerning the reduction in production and distribution costs, more complete knowledge of demand has considerable to offer. It hardly needs to be pointed out, I think, that the unprofitable employment of labor and capital means in the final analysis, a loss to everyone. Each year a considerable number of business firms fail. Less spectacular, but perhaps more important are losses which occur in the everyday operations of most businesses. Much of this loss from unprofitable business undertakings might be avoided through a better understanding of demand. There are many obvious examples of opportunity for such savings in the dairy industry. Fluid milk is transported to the city, but finds no market as such. Cream, butter, or other products may be stored for later use, only to find that they cannot be moved at profitable prices, to name obvious examples. The elimination of such losses would reduce distribution costs.

For the producer much needed information is lacking. One of the things dairymen and farm leaders want most is advance information concerning the demand for their products. To the extent that such information can be provided, unprofitable production may be avoided, and the average costs of production thereby reduced. To consumers a better understanding of demand means the elimination of shortages and surpluses and the availability of new or better adapted products and packages.

In the long run, such economies as these may be expected to increase returns to producers and lower costs to consumers, thereby encouraging consumption. This process is in contrast to the various schemes which provide temporary benefit to producers by methods which are to the detriment of particular consumer groups and/or taxpayers. To the extent that more dairy products are needed in the diet, the reduction in cost of dairy products will also improve the level of nutrition.

The second means cited above to provide permanent benefit through knowledge of demand was by a better understanding of the operation of our economy. In this country, we have built up a tremendously efficient system of production. Our present rates of consumption have never been approached by other countries, or by this country at any other time. Such a system is potentially very dangerous, however. As we become more interdependent through high specialization, we also become more vulnerable to economic dislocations. Aside from the sufferings and economic losses they bring about, such dislocations are politically dangerous. I would like to submit for your consideration the question whether it is not important that we pay increased attention to the study of those problems which will make it possible for us to use all our efficient methods of production to serve society more completely. The reward for solving these problems would be the full utilization of our best facilities and methods on a sustained basis. Economic stability is one of our greatest needs. I believe that a better knowledge of demand can make a substantial contribution in this direction.

The foregoing objectives may sound ambitious to those who have spent considerable time studying the demand for dairy products. As a matter of fact, despite the large amount of data already assembled, we have barely scratched the surface of what is to be learned. Most of our tabulations have been subject to rather wide statistical error. Some of the relationships established merely provide confirmation of things which could be deduced by casual observation. Many less obvious relationships are the objects of rather wide differences in opinion.

The challenge now facing leaders in the field of dairy economics is first to obtain conclusive evidence on those questions which are controversial and second, to provide much more exact information than we now have on the measurement of demand and of factors influencing demand.

I believe that we must depend upon "inductive" research as the only important means of shedding light on these problems. To accomplish this purpose, future research will need to be directed more toward the solution of specific problems, rather than the general relationships with which most earlier survey studies have been concerned.

It is questionable however, whether statistical methods as now used provide the best possible means for progress in this direction. In some cases, selection of samples, methods of analysis, and so on, are such as to reduce the reliability of findings. Even where procedures now considered acceptable are used, it is doubtful whether conclusive evidence can be brought to bear on such questions as "Does seasonal variation in fluid milk prices have a detrimental effect on rates of consumption?" and "what is the 'long-term' elasticity of the demand for milk?"

The question might well be raised, whether it would not be wise at this point to take more time for the study of statistical methods presently used. Expediency will usually dictate against such studies. Funds for research are ordinarily provided for the purpose of solving urgent problems. Research workers are anxious to produce the correct answers as promptly as possible.

Economists have been handicapped somewhat in the past by the fact that large masses of data are considered to be necessary. Gathering of such data is expensive and research is thereby limited. It may be that a smaller volume of data gathered more carefully and handled more exactly according to proven procedures will provide the greatest opportunity for further progress.

The weight of evidence calls for more precise and better adapted tools for analysis. It lies well within the proper activity of agricultural economists to make actual studies for comparison of different methods of study. Perhaps the wider use of experimental methods for studying demand for dairy products would allow us to advance far beyond our present level of accomplishment. An analysis of the usefulness of this method seems desirable. We cannot progress beyond the limits of the tools with which we work.

MARKETING RESEARCH UNDER THE RESEARCH AND MARKETING ACT OF 1946*

Prepared by LELAND SPENCER
Cornell University

THE Research and Marketing Act of 1946 (Public Law 733, 79th Congress), otherwise known as the Flannagan-Hope Act, was evolved by combining a number of different proposals for expansion of agricultural research and services which had previously been formulated in separate bills. The various proposals that were thus embodied in one piece of legislation pertained not only to marketing and distribution, but also to food and human nutrition, rural housing and farm structures, preservation of superior plant germ plasm, new crops for industrial use, utilization of farm surpluses, cotton research, and wool research. Consolidation of bills for these varied purposes was suggested by some of the major farm organizations. The complex nature of the Flannagan-Hope Act is accounted for in part by its origin.

The discussion panel consisted of the following persons: Phil S. Eckert, Montana State College; Carl E. F. Guterman, Cornell University Agricultural Experiment Station; A. C. Hoffman, Kraft Foods Company; E. A. Meyer, U. S. Department of Agriculture (Administrator, Research and Marketing Act of 1946); E. A. Perregaux, University of Connecticut; Leland Spencer, New York State College of Agriculture; Paul Webbink, Social Science Research Council. Others participating in the discussion included: Don S. Anderson, Production and Marketing Administration; Noble Clark, University of Wisconsin; P. J. Findlen, Extension Service, U. S. Department of Agriculture; C. G. McBride, Ohio State University; L. J. Norton, University of Illinois; H. M. Southworth, U. S. Department of Agriculture; F. L. Thomsen, Bureau of Agricultural Economics; F. V. Waugh, Council of Economic Advisers; and H. N. Young, Virginia Polytechnic Institute.

Title I of the Flannagan-Hope Act is in reality an amendment to the Bankhead-Jones Act of 1935, "to provide for research into basic laws and principles relative to agriculture and to provide for the more complete endowment and support of land-grant colleges." In five years, the appropriations authorized under this title would

* Summary of Round Table Discussion at the annual meeting of the American Farm Economic Association, Philadelphia, December 27, 1946.

increase to a maximum of \$20,000,000 a year. With the exception of 3 percent reserved for administration, these appropriations would be allocated to the agricultural experiment stations by a specified formula. The funds allocated must be matched by the respective states and territories. Up to 25 percent of the amount appropriated each year is to be allotted to the states for cooperative research in which two or more of the state agricultural experiment stations participate. *At least 20 percent of the amount of the funds authorized to be appropriated must be used for marketing research.*

Allotments of funds for cooperative research are to be made only for projects recommended by a committee of nine experiment station directors.

The term "marketing" is not specifically defined in the Act. Conferences among experiment station directors have led to the conclusion that in general marketing begins after the crop is harvested and ends when the product is purchased by the consumer. Work on such problems as disease control would not be considered marketing research even though it might have an important bearing upon the marketability of the product. Studies of consumer preferences and the uses of products by consumers would be considered marketing projects but studies concerning the nutritional requirements of consumers would definitely be excluded.

Marketing research is not limited to studies of economic aspects of distribution. For example, marketing research includes studies of the causes of product deterioration in storage, and studies to determine what constitutes quality in products purchased by food processors. (The latter needs to be determined as a basis for price differentials or quality premiums in paying growers.) It is expected that most of the research in marketing under the new act will be spearheaded by economists, but the need for team work between economists, commodity specialists, engineers and other technically-trained people will be emphasized.

Title I of the Act also authorizes additional appropriations to the Department of Agriculture for research on utilization and extended uses of farm products. In five years the new appropriation for this purpose would increase to \$15,000,000 annually. Appropriations to the Department of Agriculture amounting to \$6,000,000 annually in the fifth year and thereafter, also are authorized for cooperative research with the state agricultural experiment stations and other agencies.

Title II of the Act relates specifically to marketing, including not only research but service work such as grading and price reporting, and extension work such as consumer education. The Secretary of Agriculture is authorized and directed to carry out programs under this title in cooperation with the state agricultural experiment stations, state agricultural extension services and state departments of agriculture. Contractual arrangements with private agencies also are provided for.

The annual appropriations authorized under Title II would increase over a five-year period to \$20,000,000. Funds allocated to the states must be matched with new appropriations. However, with respect to programs carried out by public or private agencies under contract with the Secretary of Agriculture, no matching of funds is required.

Another significant provision of Title II gives the Secretary of Agriculture authority to combine in a single administrative agency all activities of the Department relating to research, service and regulatory work in connection with marketing, storage, transportation, processing and distribution.

Title III of the Act provides for a national advisory committee to consult with the Secretary of Agriculture on matters pertaining to the administration of the law. The committee consists of eleven members of whom six must be representatives of producers.

The National Advisory Committee, in its initial meeting early in December 1946, recommended a structure of industry advisory committees based on commodities and on functional problems. These will be grouped under a limited number of "general" committees, covering animal products, fruits and vegetables, field crops, fibers, and forest products. These in turn will be brought together through an over-all committee on "utilization" on which nutritionists and the general public will be represented. Serving the industry committees will be technical committees. It is hoped that the membership of at least half the commodity and functional committees can be determined before the second meeting of the National Advisory Committee, which is scheduled for early February.

The Committee also concurred in the proposal for an interim administrative set-up to get planning of work underway, pending further exploration of the most desirable permanent organizational arrangements.

As yet no funds have been appropriated to carry out the purposes

of the Flannagan-Hope Act. If any funds are to be made available before July 1, 1947 they will have to be obtained through a deficiency appropriation. Meanwhile work on the program can only be with such borrowed funds and borrowed personnel as can be made available within the Department.

Development of procedures for handling projects is one of the first orders of business. It is anticipated that projects under Title I of the Act will come up through the same channels that have been established previously under the Bankhead-Jones Act. The Department, however, will wish to present the broad patterns of proposed work to the Industry Advisory Committees for consideration and recommendation, and to be guided by the suggestions of the various committees regarding allocation of resources between and priorities of different lines of work.

The National Advisory Committee already has shown a lively interest in both long-range basic research and shorter-range applications of research findings for the solution of marketing problems. The Committee clearly favors increased *utilization* of farm products as opposed to *limitation of output* as a means of dealing with surpluses that depress the farmers' income.

Those responsible for administration of the Research and Marketing Act of 1946 will welcome the ideas and suggestions of farm economists. A committee of the American Farm Economic Association might be a helpful mechanism for bringing these ideas and suggestions to the administration.

One of the first effects of the enactment of the Flannagan-Hope Act was to stimulate a re-examination and evaluation of research in the field of marketing.

Last fall the Bureau of Agricultural Economics appointed a committee of outside marketing economists to outline a program of economic research in marketing. The preliminary report of that committee, which has just been released, lists seven types of problems in the field of marketing on which research is needed, namely:

- I—Expansion and improvement of market information.
- II—Consumption and demand.
- III—Costs and efficiency of processing and distribution.
- IV—New developments in marketing methods and procedure.
- V—Efficiency of the pricing mechanism.
- VI—Transportation.
- VII—Analysis of governmental programs and regulatory measures related to marketing.

In outlining the kinds of research needed for the solution of these problems, the Committee recognized certain shortcomings of previous research in this field. Probably too much time and expense have been devoted to studies of a descriptive nature which failed to bring into sharp focus weaknesses and inefficiencies that exist in the marketing system or to suggest needed reforms. Another weakness which needs to be corrected is the tendency to give a disproportionate amount of attention to the country end of marketing. Analytical studies of retailing and other aspects of city distribution of farm products offer far greater opportunities for narrowing the spread between the prices paid by consumers and the net returns to producers.

Economic aspects of trade organization and the functioning of the price mechanism should receive much more attention from those engaged in marketing research.

There is some complaint that much time and money expended in marketing research have been wasted because the findings and recommendations were ignored by marketing agencies and by the public. Evidence is lacking as to whether this criticism has more application to marketing research than to research in other fields. When the findings of research in any field are published they are likely to be used in ways and places which exceed the bounds of the author's knowledge or imagination. The influence of such publications for good or evil is immeasurable. Action programs sponsored by government provide one means of implementing the findings of marketing research, but the extent to which these findings are used by marketing agencies with resulting benefits to the public may be greatly underestimated. There will be general agreement however that the effectiveness of marketing research could be increased by working more closely with trade groups and by developing better team work among the people engaged in research, extension and service activities related to marketing.

A common criticism of the work of the agricultural experiment stations is that there is much duplication and a lack of coordination in the projects undertaken in different states. This criticism pertains to marketing research as well as to research in other fields. In the Flannagan-Hope Act, Congress has indicated that more team work in agricultural research is wanted. While it would be a serious mistake to eliminate all duplication in marketing research, more con-

sultation among the research workers in different states is clearly desirable. The Committee report to the Bureau of Agricultural Economics previously referred to suggests some ways of bringing about the desired cooperation.

One of the most difficult problems confronting the agencies responsible for carrying out the expanded program of marketing research is the shortage of able persons with suitable training who are available for this work. During the war years very few students had graduate training in marketing. Many who had been trained previously were attracted to administrative jobs in government or to positions in industry. Salary scales in both government and industry are generally higher than those in effect at the colleges and experiment stations. It is not to be expected, therefore, that many who have taken jobs in government or business will return from those positions to college work unless the opportunities are more nearly equalized.

The graduate schools in which agricultural economics and marketing are featured will of necessity be the main source of additional personnel for marketing research. In many states the facilities for such training are very limited. The problem of attracting a sufficient number of capable students to the field of marketing also is a serious one. More liberal stipends for graduate assistants would help. The federal government as well as the agricultural colleges should provide as liberally as possible for graduate training of the younger staff members engaged in marketing research. There should be no deviation from accepted standards with respect to intellectual capacity integrity, and the will to work. Younger persons possessing these qualifications can make up temporary deficiencies in training and experience within a relatively short time if given the opportunity.

A number of years ago the Social Science Research Council made an important contribution to research in marketing and other divisions of agricultural economics by publishing a series of reports on methodology in these fields. Three of these reports pertain directly or indirectly to the marketing of farm products, namely:

No. 7—Research in Marketing of Farm Products.

No. 9—Research in Prices of Farm Products.

No. 15—Research in Agricultural Cooperation.

The Council has a continuing interest in marketing research and

is prepared to assist in any way possible with preparations for carrying out the expanded program which is authorized by the Flannagan-Hope Act.

Conferences are being held by representatives of the state agricultural experiment stations in different regions of the country to decide upon projects to be submitted under the provision for cooperative research. The western states have agreed upon ten projects, nine of which are to be participated in by all states in the region. An equal distribution of funds for these projects to each state is recommended for the fiscal year 1947-48. For succeeding years it is contemplated that the funds will be allocated according to the importance of the projects in the several states. The tenth project agreed upon by the western states relates to cotton research and will concern only California and New Mexico.

There is danger that the measurable results of this legislation will fall short of what is expected by Congress and by the public. The fact that efficient marketing is only one of many factors that affect farm prices and the cost of living must be emphasized.

Two ways in which the American Farm Economic Association can help to promote useful research under the Flannagan-Hope Act are:

1. To provide in future annual meeting programs for more discussion of specific examples of marketing research, and
2. To set up a committee to represent the Association on various matters that arise in connection with the development of the expanded program of research, extension and service work in marketing.

An informal poll on the latter suggestion indicated that it was favored by a large majority of those in attendance at the meeting.

ECONOMIC IMPLICATIONS OF TECHNOLOGICAL DEVELOPMENTS IN AGRICULTURAL PRODUCTION*

Report of a Subcommittee of the Committee on Technological Developments of the American Farm Economics Association

TECHNOLOGICAL developments in agricultural production are not phenomena of the past few years—they have been in process for many decades and even centuries. But technological changes have been accelerated during the past few decades and many of their effects have become apparent only within the recent years of practically unlimited wartime demand for agricultural products. New machines, new varieties, new materials and methods for combating insects and diseases, new farm practices, and new understanding of their use by farmers are the fruition of research, both public and private, that may have been started many years ago. Many new developments can be expected in future years. What have been the effects of these developments on agricultural production in the past, and what foreseeable developments may be expected within the next decade or two?

A Brief History¹

In 1820 one farm person in the United States produced enough agricultural products to support himself and only .28 of another person; in 1920 he supported himself and 2.47 other persons; and by 1945 he produced enough for himself and 4.45 other persons. Since 1920 there has been relatively little change in the acreage of land planted to crops. But from the end of World War I to 1945 gross farm production² increased by 29 percent. Farm employment on the contrary was declining during most of this period of production increases. Gross production per worker therefore was 46 percent higher in 1945 than in 1919.

* A report presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 28, 1946.

¹ Much of the supporting data in this and following sections was taken from the following reports: "A Century of Farm Mechanization," by M. R. Cooper, Glen T. Barton and A. P. Brodell, BAE, USDA. (To be published.) "Changes in Farming in War and Peace," by Sherman E. Johnson, BAE, USDA. (FM No. 58, processed) June 1946. "Farm Production in War and Peace," by Glen T. Barton and M. R. Cooper, BAE, USDA. (FM No. 53, processed) December 1945.

² Gross farm production measures the total product obtained from farm land and farm labor resources in each calendar year. Farm produced power, which is measured by the cost in 1935-39 average dollars of raising and maintaining farm horses and mules, is included in gross farm production, but is excluded in measuring farm output.

During this 26-year period the decrease in horse and mule numbers resulting from farm mechanization has released about 53 million acres of cropland for producing commodities for human use. This development plus increased yields per acre and per animal resulted in an increase in farm output for human consumption of 50 percent from 1919 to 1945.

Much of this increase in farm production has occurred since 1939. Production was held down during the 1930's by severe droughts and by diminished market demand. But new methods of production were being adopted widely by farmers during this period and these laid the foundation for greatly increased production when market demand and weather were once again favorable. When the dikes were broken, a veritable flood of production resulted.

The agricultural production job in 1944 was done with an estimated 21 billion man hours of work. This is 9 billion fewer hours than would have been required to do the same job by the methods used in 1917-21. Farm mechanization accounted for about one-half of these savings in man hours per unit of product. Labor saved because of increased yields made up 19 percent of all labor savings per unit of product and increases in the size of livestock enterprises and increased production per animal accounted for another 13 percent.³ Increases in yields per acre of crops and in production per animal result from higher yielding varieties and better breeding of livestock, better disease and insect control, use of more fertilizer, better feeding practices, more timely cultural and harvesting operations, and other improved farming and soil improvement practices. These are all a part of technological developments in agricultural production. Combined, they equal mechanization in importance in explaining the increase in efficiency in farm production.

But without favorable market outlets and economic conditions that make it worth while for farmers to make use of these technologies, the full effects of technological developments remain unrealized. The production record of the World War II years compared with the record of the 1930's is ample testimony.

What of the Future?

Prediction is always hazardous, but an attempt is made here to indicate the nature and scope of prospective developments during

³ The other 20 percent of labor savings is accounted for by such factors as spreading of overhead over larger business, changes in methods of handling enterprises, elimination of operations and work simplification features.

the next decade or two as they can be seen at the present time.

Mechanical Power. There will be further displacement of horses and mules by mechanical power during the next few decades. Mechanization has progressed less on Southern farms than on farms in other regions, but it may be on the verge of catching up. The percentage increase in numbers of tractors in Southern States during the period 1940 to 1945 was about twice that in the rest of the country. Particularly with development of smaller and more efficient power units, further displacement of horses and mules in the South may be expected with a relatively prosperous agriculture. Many of the smaller farms in other parts of the country also will acquire tractors, and larger farms which now have only one tractor will have two or more. The small 8 horsepower tractor now coming on the market may be expected to replace the 2, 3, or 4 horses now kept on many tractor-operated farms for the lighter farm jobs.

If horse and mule numbers continue to decrease at about the same rate as in recent years there would be in 1975 only about 5 million head, compared with about 11.5 million head in 1946. This would mean nearly 3.5 million tractors in 1955 and about 5 million in 1975, compared with about 2.7 million tractors estimated to be on farms January 1, 1947.⁴ Such a reduction in horse and mule numbers would release an additional 20 million average acres for food and fibre production between 1946 and 1975.

Cultural and Harvesting Equipment.—Pacing the increase in numbers of tractors during the past 25 years and perhaps of equal significance were the changes in design of equipment for use with tractor power and the development of new machines. Reduced supplies of farm labor and high farm wage rates during the war years accelerated the adoption of machinery. For example, from January 1940 to January 1945 the number of grain combines increased 74 percent, corn pickers 53 percent, and milking machines 117 percent. Farmers will continue to purchase new machinery in large volume during the next few years as it becomes more easily available.

Some machines that have been developed within recent years that may be expected to be used widely include the mechanical beet harvester; the field harvester-chopper for hay and grass; the wind-row pick-up baler; and mechanical equipment for moving and handling hay. Barn-drying of hay has possibilities of improving the

⁴ Assuming a replacement rate of one tractor for 3.25 workstock between 1944-55 and one tractor for 2.25 work animals between 1955-75.

quantity and quality of hay saved, particularly in areas subject to rain damage at hay harvest time.

Mechanization of the cotton harvest with widespread adoption of mechanical pickers and strippers may be on the horizon. The stripper has been used successfully in the low-rainfall areas of the Cotton Belt for some years. The mechanical picker has reached the stage for commercial utilization only within the last few years. The flame cultivator and chemical weed killers may be revolutionary new developments for weeding of cotton and other crops. But without mechanization of the cotton harvest, mechanization of the pre-harvest operations will lag, because partial-mechanization of the process intensifies problems associated with maintaining an adequate supply of hand labor for harvesting.

All of these improved cultural and harvesting machines result in lower unit labor requirements with consequent reductions in the amount of time required of operator, family, and hired labor to produce a unit of product. The time thus saved can be used to increase the size or intensity of operations, or it will permit more leisure for the farm operator and his family and shorter working hours for hired farm workers.

Changes in Animals and Plants.—Significant increases in production per unit of breeding livestock have occurred during the past 25 years. For instance, egg production per layer increased by about one-third, milk production per cow by almost 20 percent, and hog production per animal unit of breeding livestock by over one-third. These increases have resulted from many developments, including higher producing strains and breeds of livestock, heavier feeding and better balanced rations, reduced death losses of both young and mature animals, prevention of disease, and other improved practices. Similar changes have occurred in production of crops which have increased yields per acre. Further increases in productivity of crops and of livestock can be expected. Changes probably will be gradual, but they may be spectacular, as with hybrid corn, resulting in sharp increases in production in only a few years. Regardless of their rate of development, there is no reason to believe that increased productivity through improvements in plants and animals and practices associated therewith have run their course.

Changes in Land Use.—Much progress has been made in methods of handling land to control erosion and to make most effective use of

available moisture. Contour farming, strip cropping, terracing and other conservation practices adopted primarily to stop or reduce soil loss and reduction of yields, have in many cases increased yields substantially although no over-all figures for the average increase throughout the country are available. Improved rotation practices have contributed to increased production and better balanced farming. Shifts from lower yielding grass hays to higher yielding legume hays have increased markedly the amount of livestock feed nutrients produced.⁵ Further increases from such sources are in prospect in the years ahead.

One of the sources of greatly increased production in recent years has come from larger and more widespread use of commercial fertilizers and lime. Fertilizer use in 1945 was almost double that in 1935-39. Many farmers have learned to use fertilizers for the first time during the war years. Continued heavy use can be anticipated, and another doubling of fertilizer use is not unreasonable to expect during the next decade under favorable circumstances, with resulting very material increases in yields. A significant development may be a rapid increase in use of fertilizer on feed crops, such as grains, pastures, and hay.

Economic Implications

These technological developments in agricultural production evidence themselves most strikingly in measures of increased production and productivity per worker. Their effects extend throughout the agricultural economy and even into the general economy. They create changes in size of farm, in cash costs of operation, and in investment requirements for farming. They affect landlord-tenant relationships, influence the number of job opportunities in agriculture and directly and indirectly influence the lives and economic well-being of farm people. At least for the time being, and except for the current war period of high military and foreign relief needs, the more rapid increase in labor productivity per farm worker compared with population increase has created in the United States food supplies in more than sufficient volume to feed our own population.⁶

⁵ An estimated 39 percent increase in digestible protein in all hay per roughage consuming animal unit occurred from 1920 to 1945, much of it due to the shift from grass hays to legume hays ("Hay Production in War and Peace," BAE processed report, FM No. 47, March 1945).

⁶ See "Farm Technological Advance and Population Growth," by John M. Brewster, this JOURNAL, Volume XXVII, No. 3, August 1945.

Further increases in agricultural production should be predicated upon enlarging or developing foreign markets and creating industrial uses for farm products. For the next generation farmers must be alert to the possibility of a rapidly changing demand in domestic and foreign markets since the success of modern farming depends so much upon the level of industrial activity and to competition from foreign producers for certain products.

Costs and Returns.—The immediate reason for adoption of new machines or new techniques and practices by individual farmers usually is the prospect of lowering unit costs of production for enhancement of net farm incomes. Not all technologies result in lower costs, but many of them do, either through a reduction of direct outlays per acre or through increased yields which lower unit costs. Where cost reduction effects are in operation the individuals who adopt the new technologies obtain larger incomes so long as the volume of production of the particular commodity is not increased to the point where lower prices result. With widespread adoption of cost reducing technologies and no increase in market outlets, price declines are inevitable until an equilibrium point is again reached. Those who have adopted the new technologies at least are no worse off than before, and probably retain some of the gains, but those who are not in a position to adopt the new techniques because of location, financial ability, or for other reasons may suffer a decline in net incomes. They must either get along on less, adjust to some other line of production where alternatives exist, or seek opportunities off the farm. This process has been in operation for many years, in varying degrees with different commodities and in different areas.

Where the new technologies are primarily mechanization, more land, more livestock, or more intensive crops can be handled with the same labor force. Pressures have been created toward increasing the volume of production per farm unit operated. This pressure is particularly in evidence on family-operated farms because the labor force cannot be fired, and efforts are made to utilize the available labor time. Adjustments and developments toward smaller size of machinery units has relieved some of this tendency towards increased size of farm, but even with the smallest power units and available associated equipment there are still many farms that are too small to obtain reasonably efficient use of operator and machinery time. This is true even on many wheat and Corn Belt farms, where the major mechanization process has gone far.

Increased volume of production per farm because of increase in size of farm, intensity of operations,—or yield increases which result in reduced unit costs of production, should generally result in larger net incomes per farm,—even with lower prices, for those farmers who can make the adjustments. But many of the new developments, particularly in the case of mechanical power and other farm machinery and equipment, require higher cash operating costs and an increase in fixed charges to cover depreciation and amortization of expensive machines. Cash expenses become a higher proportion of total costs. Farm incomes are more vulnerable to changing prices, and greater financial reserves are necessary to cover the natural and economic risks in farming.

Price Adjustments.—Any general adoption of cost-reducing technologies can usually be expected to result in an expansion of production in the particular commodity affected, with eventual relatively lower prices, although profit margins may be larger. As in the past, technological improvement will not affect all commodities, all farms, or all areas equally. Some will be relatively more advantaged than others, and as production is affected, prices likewise will be affected. Some prices will decline relatively more than others, with resulting pressures for adjustments among commodities and between areas. For instance, if widespread mechanization of cotton in the South results in reduced costs in adapted areas and consequent increased cotton production to the point where prices are lowered, those farmers and those areas where mechanization and other cost-reducing techniques are not practicable will be forced out of cotton production. The disadvantaged farmers and areas will seek other alternatives, which in turn will increase the competition for farmers producing these alternative crops or commodities. For example, widespread adoption of improved methods for producing poultry and eggs in the Middle West may result in price adjustments that will affect producers in the New England States. These are illustrations of the kinds of economic effects that may be anticipated in the future.

Number of Farms.—The outstanding fact of technological developments in agriculture is the sharp increase in volume of production per worker. If the future expansion of agriculture's market is limited largely to population increases in the United States, then the increasing output per worker at a rate faster than population increase can only mean fewer full-time workers and fewer full-time

farms in agriculture. Even then there is no reason to believe that the well-organized, efficiently operated family farm cannot continue to survive in the years ahead. But the large number of inadequate farms—farmers with too few acres, too little machinery and equipment, and too limited training and ability in use of new techniques—are at an increasing disadvantage. This disadvantage will increase with return to more normal price relationships; and as new technologies become available and are adopted on the already larger and better balanced farms. Agriculture has an opportunity to increase its markets greatly by developing foreign markets and producing for industrial outlets. But these are low-price markets and can be reached in large volume only by lowering production costs and prices to competitive levels. It will take efficiently organized and managed farms to do this.

Without this expansion of market outlets beyond that associated with anticipated population increases, the only result can be a shrinking agriculture from the standpoint of full-time job opportunities, even though gross farm production may be pacing population increases. Fewer full-time farms and fewer workers will be required in agriculture. Those farms too small to furnish reasonably full employment of labor and machines will be increasingly squeezed because their unit cost structure will be too high and their volume of production too low relative to other farms to provide an adequate income.

The process of farm consolidation has not yet run its course. But the rate of consolidation of small units and unit enlargement will vary greatly in different regions. The greatest change is in prospect in the South as mechanization there proceeds. The process will be speeded up with prosperous general economic conditions accompanied by available off-farm employment opportunities, and slowed down under less favorable conditions.

Combining off-farm employment with farm residence may result in an increase in the number of part-time farms. This will be particularly true as further decentralization of industry occurs with location of industrial plants in rural communities. Such a development, if it occurs in the areas likely to be affected most by future mechanization such as the South, can do much to alleviate the difficult human problems of readjustment and result in least dislocation of people. In addition to part-time farms, there are possi-

bilities of intensifying the business on small farms for greater income. Increasing numbers of small livestock farms are an example of this tendency.

Capital Requirements.—Technological changes have greatly increased the capital requirements for successful farming. Great advances have been made in reducing the size and cost of mechanical power units and associated equipment during the past 25 years, but many farms are still too small to utilize effectively even these smaller power and equipment units. There probably is a greater spread in farm returns today between the various sizes of farms than a generation or two earlier when all farmers were using much more nearly the same techniques of farming.

Productivity per worker undoubtedly is a major factor in determining levels of returns, but productivity per worker is directly associated with capital investment per worker. For instance, gross farm production per worker in 1939 in the three Southern geographic divisions⁷ was only 50 to 70 percent of the national average. In these same areas acres of cropland per worker, value of land and buildings per worker, and value of livestock per worker were less than one-half the national average, and value of equipment per worker was about one-third the U. S. average. Until the Southern agricultural worker can acquire productive resources more nearly equivalent to that in other parts of the country he can hardly be expected to attain comparable per worker productivity or returns.

Provision of more adequate resources per worker is partly a matter of reducing the number of workers, but also involves the provision or accumulation of sufficient capital per worker to provide the machines and investment necessary for higher per worker productivity. This will be a process that will require many years, and may radically alter the complexion of agriculture and even social institutions in some areas. Even in the higher income regions, access to a full-time farm is more difficult than in former years because of the greater financial requirements for purchase and operation. Technological developments have increased the importance of proper credit arrangements. Favorable credit facilities may be the key to providing many disadvantaged farming areas access to the benefits of these technologies.

⁷ West South Central States, East South Central States, and South Atlantic States.

Conclusions

The march of technology has been under way for many years, but the pace of developments has been at an accelerated rate during the past decade. Further mechanization and technological improvements are inevitable and will continue through some phases, such as substitution of mechanical power for horses and mules, will proceed at a slower rate and eventually will become stabilized when most horses and mules have been replaced. It is futile to take a negative attitude of slowing the tide. Positive approaches are needed to make the benefits available as widely and as rapidly as possible, and to cushion the short-term shocks of adjustment and dislocation of people.

Present productive capacity of American agriculture is such, even with incomplete adoption of available techniques that tend toward increasing production for the market, that the major agricultural problems during at least the next decade will be with developing market outlets or adjusting production to changes in demand. This is true even after allowing for the anticipated increase in population. Pressure of production on markets will certainly mean less favorable price-cost relationships than those which have existed during the war years. The efficiently organized, mechanized, well-managed farms probably will continue to provide satisfactory returns to their operators. But the many small-scale, non-mechanized farms will be subject to increased competition from the more efficient producers, which will further aggravate an already bad situation. This can only mean that some farm people will be forced to seek other opportunities, or they can remain in agriculture only on a part-time farm or subsistence basis. Positive steps will be needed to provide credit for farm enlargement and acquirement of needed facilities for those who remain in agriculture on a full-time farming basis in order to provide them with an adequate farm.

For those not in a position to remain in agriculture under these conditions or who find unattractive the opportunities available in agriculture, off-farm employment will be needed. Associated with technological advance are new opportunities in industries making the new machines, in transportation, and in service industries. But these opportunities are usually "somewhere else." Means of bringing the displaced agricultural worker and available jobs together are needed. Vocational training is a necessary part of this, as well as job placement.

Many of the new developments have increased the rewards of farmers on good land as compared with those on poor land. Future developments will be in this same general direction. The new technologies usually produce the greatest relative returns on the better lands and in the more productive areas. With limited market outlets, there may well result an increasing concentration of production in such areas. Such a tendency will emphasize the problems which have long existed in marginal areas and may bring new marginal areas into existence. Such problems include adjustments in land use involving shifts to new crops or enterprises, and in some cases transference of land from cultivation to use as grazing land or for timber production.

Many of the problems arising out of technological developments stem from the differential rate of adoption of new machines and new techniques by different farmers and in different areas and regions. Progressive farmers who first adopt a labor-saving device or a yield-increasing technique stand to benefit the most, before the collective effects have had a chance to result in lower prices because of increased aggregate production. Those who lag behind the procession will not share in this advantage. More rapid and general adoption of cost-reducing practices will increase the number of farmers benefited by technological improvements. A new equilibrium will be more rapidly established and the gains to society greatest.⁸ This is one of the challenges to educational and other public and private agencies in discharging their responsibilities. But another challenge is a recognition of the short-term repercussions on farm people who are adversely affected by technological development or who may be temporarily dispossessed of a job opportunity. Responsibility must fall upon society to alleviate as much as possible these human problems of readjustment and to count this as one of the costs of increased efficiency and productivity.

CARL P. HEISIG, *Bureau of Agricultural Economics*

H. L. BOYLE, *Deere and Company*

G. W. FORSTER, *North Carolina State College*

⁸ Mr. Boyle comments as follows: "Unfortunately, there are many economic forces which work against this type of development. Manufacturers, for example, introduce new machines gradually and watch their performance carefully in order to detect any design or structural weaknesses. In normal times farmers accept new machines gradually, making sure that their investment in the machine will be a profitable one. It is in this manner that all technological progress has been made in both the fields of agriculture and industry. In all probability this pattern will be followed in the months and years ahead."

TECHNOLOGICAL DEVELOPMENTS IN AGRICULTURAL MARKETING*

Report of a subcommittee of the American Farm Economic Association

THE key to many of the most important social, political and economic developments is to be found in technological change. Such modern economic problems as the business cycle and labor relations arose directly from the march of industrial technology. Malthus early reminded us of the consequences of failure to take into account changes in technology when drawing conclusions relative to agriculture. Technology has played an important role in marketing, although it seems to be thought of generally in connection with production. In fact, a case might be made in support of the thesis that technological change has been reflected in agricultural marketing and transportation even more than in production.

Given now a marketing and transportation system for farm products having the technological status of 1800, the entire existing economic order of the United States, both agricultural and industrial, would completely break down. Our large industrial centers could not be fed; great portions of the specialized agricultural producing areas would be without market outlets. Even a casual examination of the farm economy discloses that a very large part of it is absolutely dependent upon methods of processing, storing and transporting commodities which have been developed in comparatively recent years.

Unless we believe in the theory of the mature economy, and ignore the unusually rapid strides made by technology during the war, we must expect that the years ahead also will bring very significant changes in methods of marketing and transporting farm products. These developments, like those of the past, will affect vitally the geographical distribution of production, the relative incomes of different groups of producers, the relative status of agriculture and industry, the development of foreign trade, and a host of other economic relationships.

Some Jules Verne might even visualize a distant future in which technological progress has made it possible for chemists of the General Foods Corporation to bring us all our daily nutritional requirements in a convenient capsule, made of synthetic materials,

* A paper presented at the annual meeting of the American Farm Economic Association, Philadelphia, December 28, 1946.

attractively packaged and labeled, and called to our attention each week by a televised Bing Crosby, Jr. That part of the land area remaining in crops might be devoted to the production of celery or other tasty roughage to condition the gradual shrinking of our aldermanic paunches. Before dismissing even such fantastic images as utterly impossible we should remember the recently reported decision of a railroad president to postpone a large order for new locomotives because of his consulting engineer's belief in the imminence of commercialized atomic energy.

But we do not have to wander so far afield in order to find prospective changes in marketing and transportation technology of great significance to agriculture. Plans already are afoot to make the retail food store, the meat packing plant, and other standbys of our present marketing system into quite different affairs than those to which we have been accustomed in the past. Those technological changes which on the basis of present indications seem to have most important implications for the next decade or two are freezing, pre-cooking, packaging, condensation or concentration, new and improved transportation equipment, textile manufacturing, merchandising and management control operations, and industrial utilization.

New forms of processing

Of these the most important seems to be freezing. Enthusiasts recently have made serious predictions that within a decade 60 percent of all foodstuffs sold in this country will be frozen. This estimate seems entirely out of line with reality. Even if all meats, poultry, and fruits and vegetables were frozen, only about 50 percent of the total dollar volume at retail would be included. It would not be very surprising, however, if as much as one quarter of all food (retail value basis) eventually reaches the consumer in frozen form, unless some still newer and better methods of preservation are developed. This implies a considerable substitution of frozen for fresh and canned fruits and vegetables, and a very large shift in the case of meats, poultry and fish.

Although frozen meats now have no quality advantages over fresh meats, other advantages are so pronounced that they eventually may become the most important frozen food item, despite the existence of undoubtedly serious obstacles to such a development. Frozen meats are ideally suited to the self-service operations of

modern retail food stores. They make possible a much greater degree of standardization than do fresh meats, and are far better adapted to branding and merchandising promotion. They make possible a better seasonal adjustment of supply to demand, and could result in smaller seasonal price fluctuations for livestock at the same time that costs of production were reduced by permitting a more uneven seasonal distribution of receipts. Consumer reaction, on the other hand, is yet to be determined, and labor organization opposition may delay or prevent commercial exploitation.

Dehydration, which on the basis of present methods does not seem to offer important commercial possibilities, may come into the picture in conjunction with freezing. "Dehydrofrozen" foods developed at a Department of Agriculture laboratory are said to have advantages of both forms of processing. A new method of quick dehydration also is claimed to result in products greatly superior in quality to those produced during the war. As yet, however, not enough is known about the commercial adaptability of these new developments to warrant predictions regarding future volume.

Pre-cooked frozen foods, as yet hardly more than a gleam in the eyes of a few promoters and investors, give promise of eventual tremendous expansion. There can be no doubt that pre-cooked foods of very good quality can be placed on the market even now. The tremendous shrinkage from raw materials to finished meals which is involved in cooking, making the per-pound cost and price differential appear much greater than it is when proper allowance is made for this factor in the home preparation of meals, and the still low valuation of women's work in the home, constitute important obstacles to the commercial exploitation of pre-cooked foods. But changes in the working and living habits of urban families which have been under way for many years auger well for the future of pre-cooked foods when experimental operations have shaken down into efficient commercial operations.

The condensation or concentration of liquid foods, particularly fruit juices and milk, may prove to be an important factor in the marketing of these products in future years. Many practical problems remain to be worked out. But enough is known already to indicate some of the possibilities. Concentration reduces bulk and the unnecessary cost of shipping and handling large volumes of water. It makes purchasing more convenient, and facilitates sanitary storage over a longer period of time. The process of condensa-

tion and sterilization as applied, for example, to canned evaporated milk imparts a burned or caramelized taste to the finished product, but presently known methods of low-temperature evaporation under vacuum, without high temperature sterilization, largely or entirely obviate this difficulty. Milk condensed to one-fourth its original volume and frozen can be easily reconstituted with water from the kitchen tap, and cannot be distinguished by most people from the original product. One need have no great familiarity with the cumbersome and expensive methods of handling market milk to see the possibilities of these products in reducing marketing costs, enlarging the milk sheds of urban centers, and making short-time adjustments of supply to varying consumer requirements.

Consumer packaging to expand

Packaging has been viewed by many economists in the past as largely an unnecessary frill adding to marketing costs and encouraging product differentiation with the accompanying "evils" of monopolistic competition. Despite this disapproval, packaging has made tremendous strides and has brought with it many advantages as well as disadvantages. The increase in direct costs brought about in many cases has been partly, and sometimes more than offset by indirect savings made possible by convenience in handling and the encouragement which packaging offers to low-cost self-service methods of retailing. Packaging also has facilitated grading and standardization, and has made food buying much more convenient for the consumer. It will surely be expanded far beyond its present limits in the marketing of agricultural products, both facilitating and being facilitated by other technological developments such as freezing. The development of consumer packaging in connection with fruits and vegetables, meats, and other perishables will be especially important. Consumer packaging also offers possibilities in placing the retailing of many textiles on a self-service basis, with accompanying opportunities for marketing cost reductions.

Transportation improvements

The growth of trucking has exerted a tremendous influence on the transportation of farm products since World War I. It has taken over a good part of livestock transportation, it has become

important in long-distance shipping of fresh fruits and vegetables, it has almost replaced the rail movement of fluid milk, it has practically taken over short hauls at every stage of marketing from the farm to the consumer. Yet the technological development of trucking is said by some far-seeing engineers to have only begun. Refrigerated trucks only recently have been coming into the picture, and the use of Diesel motors or gas turbine engines carries great promise. Together with the building of high-speed traffic ways, these developments promise to make trucking of even greater relative importance in the future. Air transport also offers interesting possibilities for the long-distance hauling of some perishable agricultural products, although it is not likely to take over any substantial proportion of the total agricultural traffic volume in the foreseeable future. Railroad transportation, in contrast to these newer forms, has changed little since before World War I. Archaic equipment which fails to realize even the potentialities of the more simple and well established new devices, and operating methods having little apparent regard for competitive factors, offer broad opportunity for improvement. Among the prospective developments along these lines are improved refrigerator cars, in which artificial may eventually replace natural ice refrigeration, lighter and better insulated cars with forced air circulation and thermostatic controls where desirable, Diesel and possibly gas turbine motive power, better loading methods, and reduction of time in transit.

Technology in textiles

The textile industry has been among those experiencing the most revolutionary technological changes in recent years. These have centered around synthetic materials which are substitutes for cotton and wool. Methods of manufacturing textiles made from agricultural raw materials have altered relatively little. The development of new textile finishes and treatment methods, the introduction of improved machinery such as long-draft spinning, and the design of new materials which may be able to compete more successfully with those made from synthetics offer an opportunity to put the manufacture of textile products from cotton and wool more nearly on a par technologically with those prevailing in the synthetic textiles industry.

Industrial utilization

Industrial utilization of farm products always has struck a responsive chord among those concerned with the improvement of farm income and the elimination of agricultural surpluses, because such uses generally do not compete with other uses, and thus would not make a gain in one segment of demand merely at the expense of another. But despite the enthusiasm, and a rather well supported program of public research, new industrial uses which might play a large part in absorbing potential surpluses of farm products do not seem to have been developed.

This does not necessarily indicate lack of initial success in the laboratory. Many new processes for the utilization of farm products in industry have been worked out. Some of these have gone from the laboratory into industry, but frequently it has been found that too high competitive costs prevent commercial exploitation. The development of a non-food product made from soybeans will add little to the demand for farm products if it cannot be produced more cheaply than one of equal quality made from nonagricultural materials. Moreover, laboratories of industrial firms also have been conducting research to find cheaper and better sources of raw materials, the effect of which has been to offset more or less the development of new uses for agricultural products. One large chemical firm, for example, is reputed to have adopted the specific policy of avoiding wherever possible the use of agricultural materials because of fluctuating supplies and prices.

Objective consideration of these facts indicates that we will do well not to expect too much from industrial utilization. We may be lucky, by the intensive application of laboratory research, merely to hold our own against the encroachments of nonagricultural materials in the industrial field, including textiles.

Merchandising practices

Two other types of marketing improvements which probably should be looked upon as largely technological in character are developments in merchandising, particularly in retailing, and the improvement of management techniques in marketing.

Probably no part of the marketing system has undergone greater changes since World War I than retailing. The striking contrast between the old-fashioned corner "grocery store" and the modern

supermarket reflects a virtual revolution in methods of retail food merchandising, which has been closely linked to the increased use of the automobile. The success of the modern retail food store has been based largely upon reduced costs of operation arising from increased volume per unit, the introduction of self-service methods, and centralized buying and management.

Management controls over such things as the location of stores, the type and arrangement of equipment, relative emphasis given different groups of food products, traffic flow within the store, advertising and price promotions, other features of store operation and personnel supervision have been developed to a high degree of efficiency. It is evident, however, that the peak has not been reached, and that practical merchandising research is able to disclose many new ways of increasing volume per unit and making handling operations more efficient.

The mechanization of store operations also is receiving a great deal of attention from inventors. Although it is yet too early to draw any definite conclusions regarding the possibilities of this latest development in retailing, it would appear that the possible introduction of frozen meats and pre-packaged fresh produce, and the recent invention of automatic change makers, will eliminate some of the leading obstacles. One would do well not to take for granted the present-day supermarket as the culmination of change in retail merchandising.

Management techniques in marketing

Introduction of the assembly line into industrial manufacturing operations brought in its wake a lengthy train of efficiency improvements based on the breaking down of complicated single operations into many simple tasks which could be performed by unskilled labor with maximum opportunity for management to check and maintain the output of individual workers. Closely allied to this increased reliance on the principle of division of labor was the time and motion study and work simplification approach.

In recent years the farm management people have picked up the idea of work simplification, and the meeting halls resound with the voices of their specialists reading papers on the subject. Although marketing teachers and researchers long have made admiring references to the labor efficiency of meat packing establishments, relatively little progress has been made in bringing about increased

application of these principles in marketing generally. Purdue University is reported recently to have made studies indicating the importance of this approach in increasing marketing efficiency, and others also have become interested in developing this phase of management research and its application. Ten or twenty years from now we might very well look back upon this as the beginning of an important technological development in marketing.

Many changes unpredictable

In attempting to evaluate the future of technology in any field, the one fatal mistake is to minimize the probable changes. Science and invention are just coming into full bloom, and their limits are boundless as far as present human comprehension is concerned. There is every reason to expect that the flood of new products, devices and methods which center in the field of industrial production will spill over into agriculture and agricultural marketing, with eventual effects far beyond those which we now can visualize. The economist, like all human beings, is prone to interpret the future in terms of the present. Thus, the professor of marketing, like the president of the Ajax Grocery Company, usually is inclined toward the position that the ultimate in equipment and methodology has been reached, and that from now on changes in marketing are likely to be minor ones, in the nature of perfection of detail. Such a viewpoint, although perfectly natural, is not likely to prove correct in the long run, and will not contribute to the kind and degree of improvement in marketing which we all hope for.

Prospective effects of marketing technology

Taking into account only those technological improvements which are now discernible in the offing, we can observe a number of prospective effects which will have important repercussions on various groups of producers and consumers.

Agriculture, one of the few large industries still operating essentially under conditions of pure competition, will be drawn more and more into the category of limited monopoly which accompanies merchandising of products under individual brands. Meats and fresh fruits and vegetables, bulking so largely in the total food marketing picture, will follow canned goods and dairy products into the realm of monopolistic competition. In the case of fruits and vegetables, especially, this will extend in many cases clear down to

the individual shipper and even producer. This will give increased competitive advantages to large producers and shippers of fruits and vegetables, and to cooperatives, since the advantages of product differentiation cannot be realized in an important degree by small marketing units.

The advantages of quality control and other features of integrated production and marketing operations will be enhanced, as in the case of certain recently developed frozen food operations which extend from the farm clear through to the retailer. The tie-in between production and marketing will become of increasing importance.

Opportunities for and advantages arising from product differentiation and integration will tend to bring about consolidation of scattered marketing operations, and promote the growth of large concerns of the general type which in recent years have come into the cheese and other food marketing fields. The advantages to retail food chains of engaging in marketing operations below the level of the terminal wholesale market will be increased. The attention given by economists to various elements of monopoly in agricultural marketing will be increased, and it is hoped that the current interpretations of the nature and effects of monopoly will become more competently intellectual and less incompetently emotional.

The costs of rendering many marketing services will be reduced as a result of these technological changes, but the services performed will be increased to such an extent, as in the case of pre-cooked frozen foods, that the total spread between the farm and the consumer may be materially greater. If, as a result of receiving these extra services, consumers allocate a larger proportion of their current income to the purchase of products of agricultural origin, this will not be an adverse change from the standpoint of producers.

Consumers will benefit from the more palatable foods of higher nutritional content made available in more convenient form. The resulting general enhancement of nutrition should, if we are to believe the tales of our colleagues in the field of biochemistry, materially affect the capacity of our people for accomplishing good or fighting atomic wars.

Agricultural producers will be affected in different ways, according to their geographical location and competitive position in the old and new areas. Seasonal supplies and prices of fruits and vegetables, meats and other products will be materially altered. This

will affect production costs as well as market returns. For example, any general shift to frozen meats would contribute greatly to the adjustment of market supplies to seasonal consumption, reduce the seasonal peaks in meat and livestock prices, and result in a more uneven distribution of livestock receipts which would tend to lower costs of production at the same time that it increased costs of processing. The relative advantages enjoyed by producers of "early" produce, and by producers located close to large consuming markets, are likely to decline in importance, and these sections will be placed on a more strictly competitive basis with low-cost producing areas. The advantages accruing to large producers of quality products who are wide awake to take advantage of new marketing opportunities may be increased, although some technological developments would tend to limit the opportunities for individual marketing by smaller producers.

SUBCOMMITTEE MEMBERS:

C. O. BRANNEN, *University of Arkansas*

A. C. HOFFMAN, *Kraft Foods Company*

F. L. THOMSEN, *BAE, Chairman*

A FOOD AND NUTRITION PROGRAM FOR THE UNITED STATES*

The Chairman of the Committee, Dr. J. D. Black, suggested that each panel member discuss certain problems involved in developing a national food and nutrition program. The following statements are submitted by the participants as a summary of their discussion at the round table.

DEFICIENCIES IN THE UNITED STATES DIET, AND MEANS OF MEETING THEM

L. A. MAYNARD
Cornell University

From a nutritional standpoint, diets are evaluated in terms of their ability to provide the individual with the nutrients needed for optimum health and performance. There are two general methods of obtaining information. In the *survey method*, the nutrients actually consumed, as obtained from data as to food intake and its nutrient composition, are compared with standards for body needs, such as the National Research Council recommended dietary allowances. In the *physiological method*, nutritional status is measured by physical and laboratory examinations which detect specific nutrient deficiency symptoms in a population.

Both procedures have their limitations. The standards for evaluating these data are by no means clearly established. In the survey method, the question arises as to whether the recommended dietary allowances, which are "goals toward which to aim in planning practical diets," or a standard closer to minimum needs, should be used. In the physiological method, the actual significance of many of the physical signs and laboratory findings considered indicative of the specific so-called preclinical nutritional deficiencies, remains in doubt.

Incidence of Malnutrition

There are sufficient data from recent studies, however, to indicate, even when conservatively interpreted, that malnutrition continues to be an important problem among various segments of our population.

The survey conducted by the U.S.D.A. in 1942 revealed that while the situation had improved since 1936, approximately one-third of the diets failed to meet the N.R.C. standards in one or more nutrients. Although this finding does not mean that one-third of the population was actually undernourished, the cases of very marked shortages were sufficiently numerous to indicate that malnutrition remained a real problem.

In 1942, the Office of Defense Health and Welfare Service, with the cooperation of the Public Health Service, sponsored nutrition clinic demonstrations throughout the country. Diet records and physical and

* Summary of remarks by members of the Association Committee on that subject at the round table discussion during the Annual Meeting of the American Farm Economic Association at Philadelphia, December 28, 1946.

laboratory examinations were made. Reporting in 1945 on these activities, Wilkins and Sebrell (*Fed. Proc.* 4, 258, 1945) stated: "To date 66 clinic demonstrations have been made in 24 states in all sections of the country. In all areas, we found a wealth of evidence suggesting deficiency disease. The evidence also suggests that deficiency disease is widespread in school children." Country-wide Selective Service records show that approximately one-third of the rejections were due to causes related directly or indirectly to malnutrition.

Goldsmith (*Fed. Proc.* 4, 263, 1945) has reported on an extensive series of studies in Louisiana, most of which were made in 1942-44, which fully justify her conclusion from dietary records and physical and laboratory examinations, that "nutritional deficiency is still an important problem in this part of the country." In a study of New Orleans grade and high school students, for example, the diets were found poor (distinctly below N.R.C. standards) in the case of 29 percent of the white students and 59 percent of the negro students.

Other studies revealing clear evidence of malnutrition might be cited. There are also reports from specific areas in which serious dietary deficiencies were found to be rare. The malnutrition problem is not general for the country as a whole, but is of outstanding importance among certain groups and in certain areas. It appears to be most serious among children and pregnant or nursing mothers.

One cannot state with any certainty what specific deficiencies are most common. Area and group differences are involved. Also, there are physical signs clearly indicating malnutrition which are not sufficiently specific to identify the individual nutrient concerned. In fact, multiple deficiencies may be involved. Such deficiencies are primarily of specific nutrients rather than of calories—a lack of foods of the right quality rather than an insufficient intake in general. In the 1942 survey by the U.S.D.A., riboflavin, calcium and vitamin C were found most frequently lacking in terms of the N.R.C. standards. Other vitamin deficiencies have been stressed in other reports. A lack of vitamin D continues to be important among certain groups of children. The frequent occurrence of anemias, which apparently are not due to other causes, indicate a dietary lack of iron or factors concerned in its utilization. Some groups evidently do not get enough protein or protein of the right quality.

It should be realized that these findings were obtained during a period of abundant food supplies and of high purchasing power. The Food Consumption Levels Studies of the Combined Food Board revealed that the average per capita nutrients available for civilian consumption were in all cases markedly above the N.R.C. standards—sufficient to cover normal unaccounted-for losses between the retail stage and ingestion. But national averages are no guarantee that an adequate diet is available at all times in every locality or that everyone has the money or the knowledge or even the desire to buy it. These facts are reflected in the evidence of the continued occurrence of malnutrition during the past five years.

Thus, even under the present favorable conditions the occurrence of malnutrition remains an important problem. If conditions become less

favorable, malnutrition may be expected to increase, primarily because of a shift to a diet of lower nutritional quality.

Means of Meeting Nutritional Deficiencies

The present situation and outlook suggest that the problem merits continued attention in any national food and nutrition program. In the first place, *nutrition education* in the home, in the school, and for the general public should be stepped up to combat ignorance and indifference. It must be made more effective in reaching those who need it most and in meeting their specific and individual needs. The continued rise in the consumption of dairy products during the depression years is an example of what nutrition can accomplish even in adverse situations.

Education, however, is a slow process. It must be accompanied by more active measures. The *school lunch program* has the double advantage of being of immediate and direct benefit to a group which stand in special need of a better diet and of serving as a practical and effective means of education as well. The school-age group represents the time of life when food habits are largely formed. A school lunch program, coupled with formal nutrition education, exerts an influence that carries back into the home. No other single measure could accomplish as much for better nutrition as a nation-wide liberally supported school lunch program.

Public funds should also be made available where needed to assist *infants and nursing and expectant mothers* to obtain an adequate diet. What plan will most effectively accomplish this objective may well be a matter of debate, but from the standpoint of the nutrition scientist the prevention of ill-health through better nutrition is as justifiable a use of public funds as the care of the sick, and more economical in the long run. The elimination of malnutrition is a good policy irrespective of humanitarian reasons. Good nutrition is essential to the health of the community, the nation, and the individual. Taxpayers need to realize that a decrease in public expenditures for medical care necessary for the support of those unable to earn a living would result. Public education to this end seems very important in connection with both the school lunch program and any other measures calling for public support.

While the quality of the present food supply is fully adequate on an average basis, its further improvement is nevertheless desirable. Although it is possible to obtain an adequate diet from a national supply containing less of the so-called "protective foods" than our present one, such a procedure is not to be advocated for our people except as necessity or the need for sharing may dictate. It requires more knowledge and skill to select an adequate diet from foods of lower nutritional quality. More education is needed accordingly. Milk, meat, eggs and fruits and, to a lesser extent, the more nutritious vegetables are the preferred foods. Nutrition is best served when foods which are both most nutritious and most highly prized are available in abundance. Food habits are of tremendous importance. Changes can be brought about only very slowly without nutritional disadvantage when shifts to less preferred foods of lower nutritional quality are involved.

A more precise evaluation of the occurrence of malnutrition and of the effectiveness of specific procedures in correcting it becomes of special importance in connection with national food programs which involve the large use of public funds. Apart from the correction of nutritional deficiencies, information is particularly needed as to the relationships between the diet of the individual and his state of health and performance. Thus it would seem an important part of a food and nutrition program for the nation to test, as we go along, the need for and the effectiveness of the measures taken. I hope that in connection with plans for the expansion of the school lunch program and any other measures, provision can be made for studies of their actual effects on nutritional status, along with studies of their operation in general.

LEVELS OF FOOD CONSUMPTION, PAST AND PROSPECTIVE

H. M. SOUTHWORTH

U. S. Department of Agriculture

What Has Happened to Food Consumption?

Trends in consumption by commodities and by nutritive elements are well brought out in the mimeographed publication "Nutritive Value of the Per Capita Food Supply 1909-45" issued by the Bureau of Human Nutrition and Home Economics and the Bureau of Agricultural Economics in June 1946. Long-run trends in per capita consumption are indicated: upward in the case of dairy products, citrus fruits and leafy green and yellow vegetables; and downward in grain products, potatoes and sweet potatoes, and perhaps deciduous fruits. An earlier downward trend in meat consumption was reversed in the middle 30's. The rising trend that began then continued through the War to the extent that restricted supplies of meat permitted. An earlier upward trend in consumption of sugars was reversed around 1930 and the decline in sugar consumption was particularly marked during the War.

A number of other wartime changes may be noted. The protein foods: eggs and the beans, peas and nut group increased in consumption and the long-run upward trend in dairy products was accelerated—with a remarkable rise in the consumption of fluid milk especially. Upward trends in citrus and in vegetables were likewise accelerated. The downward trends in potatoes and sweet potatoes and in grain products appeared to have been checked. The War saw decreasing per capita consumption of fats and oils.

It should be emphasized that these data are national averages and subject to all the shortcomings that inhere in such averages. We need to know more about the dispersions around these averages—the extent to which the apparent improvements in diet have been participated in by the many separate groups—geographic, cultural, and income—that make up the national population.

What Will Happen to Food Consumption?

There is a "natural law" that at the times when we need forecasts in the worst way, they are the hardest to make in any reliable fashion. This is such a time. Most of the forecasting currently being attempted turns out on closer examination not to be forecasting at all. Rather, it turns out to be what we call "model building"—estimating what may happen if certain underlying variables vary in assumed ways. As a basis for stimulating discussion at this meeting, it would seem more profitable to list some of these underlying variables rather than to attempt to describe the pattern of consumption that might result under certain assumptions regarding them.

I should like to throw out four such underlying factors for discussion. First of all, what we eat over the next few years is going to depend upon what is produced and what is put on the domestic market. Year in and year out we eat pretty much what is available. This is going to depend in part on our policies and programs with regard to production and, especially, with regard to price support—whether we hold products off the market to keep the prices up or find some other means of carrying out farm income objectives. It will depend to some extent on foreign trade developments and our policies with respect to exporting and importing foodstuffs.

In the second place, what we eat is going to depend upon purchasing power. Under this category I include the whole pattern of phenomena relating to employment and wages in comparison with prices; to business activity, prosperity and depression; and to income distribution. In this field of speculation one can get about as many opinions as he finds persons to ask, and the opinions vary not only from person to person, but from month to month.

A third important factor will be the pattern of consumer interests and the effectiveness of education and other influences in molding those patterns. Will we be able to sustain the increasing interest in nutrition that has developed in recent years and especially during the War? What will happen to food consumption as other goods become more widely available in the markets and producers and distributors of them return to advertising and high pressure selling? Will our nutritional education work be able to compete with these other forces that have in the past been a highly important educational influence on consumers?

This leads to the fourth factor, the way in which we market our foods. Will we back up educational work with effective and efficient merchandising? What we eat may be substantially influenced by whether foods are made widely available, at a reasonable marketing charge, at the right time and place and in the right quality and condition to suit consumers. In this connection the success of programs that may be developed under the new Research and Marketing Act may have an important bearing.

To sum up, I think we can state four short propositions regarding food consumption over the next several years. (1) We will eat what we get. (2) We will eat what we can afford to buy. (3) We will eat what we're taught to eat. (4) We will eat what we're sold. The actual pattern of consumption

will be forged in the combination and conflict of forces that underly these four statements.

PROGRAMS FOR MAINTAINING FOOD DEMAND

RAINER SCHICKELE

U.S.D.A., Washington, D. C.

The appearance of food surpluses are usually credited to production maladjustments. The discussion of what to do about them, therefore, often focusses upon means of reducing food output and shifting resources out of agriculture.

War and postwar prosperity in the United States, however, has demonstrated a higher capacity to consume food than most students would have anticipated. Also, in view of continued prevalence of malnutrition in substantial sectors of the population pointed out by Dr. Maynard, there is ample evidence that food surpluses might arise from consumption rather than production maladjustments. Before recommending a reduction on the supply side, it would be wise to explore the possibilities of inducing an expansion on the demand side.

Food Demand in Prosperity

In 1946, per capita food consumption was about 15% above prewar. At the same prices, consumers would have taken more had it been available; and if farm prices would have been closer to parity (say around 105 instead of 120), lower food prices would have raised consumption even more, perhaps to an index of 120. Allowing for population increase, such a demand level would have absorbed practically the total increase of food production achieved during the war years, at profitable farm prices.

This increase in domestic food demand was the combined result of a high national income and a better distribution of that income among the nation's families. Estimates indicate that in 1936 about 50% of the urban families spent less for food than was required to purchase an adequate low-cost diet; in 1942, that proportion decreased to about 25%, and was probably even lower in 1946.

Aggregate food demand, therefore, can be increased by raising national income, and by increasing the income of the lower-income relative to that of the higher-income families. Appropriate policies directed toward such ends are general-economic in nature; they are not specific food and nutrition policies.

Effect of Income Distribution on Food Demand

Consumer expenditure studies clearly demonstrate that the income elasticity of food demand is substantially higher in the lower than in the upper half of the families on the income scale. Various kinds of food are quite differently affected by income changes, as the following table indicates.

EFFECT OF NON-FARM FAMILY INCOME ON FOOD CONSUMPTION,
1935-36*

Commodity	Consumption Index	
	Average per capita consumption=100	
	Lowest income group	Highest income group
All Foods	67	165
Tomatoes & Citrus	31	238
Meat, poultry, fish	53	202
Green & yellow vegetables	56	174
Dairy Products (excl. butter)	52	150
Eggs	68	141
Potatoes	73	115
Sugars	94	121
Fats and Oils	102	130
Grain products	126	113
Dry beans, peas, nuts	100	100

* Derived from data presented by H. K. Stiebling, Adequacy of American Diets
Journal of the American Medical Association, March 13, 1943, Vol. 121, No. 11

Families in the lowest income group (under \$500) consumed about half as much meat per capita as the average non-farm person, while in the highest income group (\$5000 and over) they consumed about twice as much per capita as the average. That differential is much smaller in potatoes, sugars, fats, and is actually reversed in grain products.

A sense of the order of magnitude with which changes in income distribution might affect aggregate food demand can be gained by applying the consumption rates observed in families of various incomes to different patterns of income distribution. If per capita consumption rates of the respective income groups in a depression pattern of income distribution (1935-36) are combined to average national consumption rates and used as

Commodity	Per Capita Consumption Index Under Prosperity Income Distribution (Depression Distribution = 100)
All foods	119
Tomatoes & Citrus	151
Meat, poultry, fish	131
Green & yellow vegetables	125
Dairy Products & eggs (excl. butter)	116
Potatoes	108
Sugar, fats and oils	106
Grain products	97
Dry beans, peas, nuts	92

an index base, those same income group rates applied to a prosperity pattern of income distribution (1945) would result in the average consumption indices, of the foregoing table assuming food prices constant.¹

These figures, derived from the non-farm consumption data of the 1935-36 Consumer Purchasing Study, cannot be more than rough approximations. I believe, however, that they indicate fairly well the relative sensitivity of demand for the major food groups to income changes, and the general order of magnitude of their over-all effect upon aggregate food demand.

These facts and considerations are extremely important in evaluating various policy measures designed to expand the effective demand for food and to increase food consumption where it is most needed from a nutritional viewpoint.

Food Consumption Supports

As an alternative to reducing food output, or supporting prices in the market at a pre-determined level, measures to support consumption in face of declining national income or deteriorating income distribution deserve closer study. To the extent that such measures can be justified on grounds of their inherent nutritional and public health merits, they should be applied regardless of whether or not food is "in surplus" at any particular time. Their economic effect will be to stabilize aggregate demand for food at a relatively high level and to cushion the impact of business recession upon farm prices on the one hand, and upon the diets of lower-income families on the other.

The *School Lunch Program* is the only general food consumption support measure now in operation in this country. Its present scope is rather limited (to a \$75 million annual federal appropriation and whatever state and local agencies contribute, and serving probably less than one-fourth of all students enrolled in public schools). It could be greatly expanded until a balanced meal would be offered free of charge to every student in grade and high school. The meals could be adapted in their composition to age, climate and food habit requirements. The program's educational phases could be greatly strengthened, and its over-all effect upon nutrition and health on the one hand, and the market demand for many important foods on the other, could be much increased beyond its present scope.

Moreover, it furnishes an efficient outlet for some of the foods purchased by the government under price support operations. Surplus disposal through school lunches, however, should not exceed reasonable nutritional limits.

The *National Food Allotment Program* is a rather ambitious proposal offered in the "Aiken Bill" of 1945 (S.1151 79th Congress).² It would in effect establish a nutritional floor below which no American family would

¹ These figures are highly tentative and require rigorous scrutiny. Pending such scrutiny, they should serve only to indicate a probable general pattern and order of magnitude.

² See R. Schickele, *The National Food Allotment Program*. *THIS JOURNAL*, May 1946.

The same Bill was reintroduced January 10, 1947 by Senator Aitken in S.131, 80th Congress.

need to fall. It would not prescribe any specific standard diet, but would make available to any family sufficient purchasing power to buy an adequate low-cost diet, leaving consumers free choice as to which foods they want to use. Any family would be entitled to purchase with an amount roughly corresponding to its normal food expenditure a booklet of food coupons whose face value amounts to the cost of an adequate low-cost diet. Part of this program would be an intensive nutritional education service which would advise participating families how to make the best use of their food coupons in purchasing a diet well adapted to their individual needs.

Assuming the provisions of the Aiken Bill's latest version, it has been estimated that a full-fledged program would require around \$500 million dollars in federal appropriations under prosperity conditions, which would increase to \$2 or 2½ billion in a severe depression. Since many administrative difficulties are involved in operating such a program, it should perhaps be started on an experimental scale in various places before applying it on a nation-wide basis.

Whatever its social or psychological drawbacks may be, its economic effect on aggregate food demand would be decidedly favorable. The consumption rates by income groups quoted earlier suggest that the demand especially for fresh fruits and vegetables, meat, dairy and poultry products would be materially stronger during a business recession than it would be without the program, while potatoes, cereals, dry beans and peas would be affected but little. But more important than the general price-stabilizing factor would be that the nation's nutrition, and in a large measure the health of the people, would be protected against the impact of business fluctuations and unemployment. It would constitute an adjustment in *demand* rather than the supply pattern, in the direction of activating the latent food demand of families most in need of food.

The *Food Stamp Program* which was in effect from 1938 to 1942 was in some respects similar to the Food Allotment Program. It was, however, primarily intended to reduce food surpluses, since the free (blue) stamps could be used only for foods appearing on the surplus list. Still, it helped probably the majority of participating relief families to improve their nutrition by giving them access to food which otherwise might have been wasted or diverted to lower uses.

It is highly worthwhile exploring ways and means to improve the demand pattern for food so as to bring about a distribution more nearly according to nutritional needs. Families with low per capita incomes, school children, expectant and nursing mothers are the groups where the incidence of malnutrition and undernourishment is strongest. Not all of it can be attributed to inadequate incomes, but a large part of it can. In the higher income groups there is much over-eating and poor selection of foods which can be combatted by nutritional education; in the lower income groups, there is much under-eating and poor selection of foods by necessity which education alone cannot overcome. The activation of the latent demand for food in under- or mal-nourished families should be one of the prime objectives of a national food and nutrition program; effective and wide-spread nutritional education should be the other.

FOOD CONSUMPTION IN RELATION TO FARM
PRODUCTION AND INCOME

HELEN C. FARNSWORTH

Food Research Institute

I have been asked to discuss the question: "Can consumption and production of farm products be brought into balance at levels that provide reasonable incomes for farm families?"

This is one of those debatable questions that can be answered either affirmatively or negatively, depending on how the important terms are defined and what assumptions are made as to future conditions of employment and trade. In the present instance we need to agree on what level and distribution of production is supposed to be balanced against what kind of consumption, and what we mean by "reasonable incomes" for farm families.

Food Production Prospects

Take first the level of production of farm products. Between 1910 and 1938 the index of volume of agricultural production in the United States rose about 30 percent or at an average rate of about 1 percent per year. Then came the war, and between 1938 and 1946 the index rose almost as much as it had in all of the 28 preceding years combined or at an average annual rate of 3 percent. If we want to talk about balancing consumption and production in the early 1950's, with what level of production shall we be concerned—the level characteristic of the past three years, a moderately lower level, or a level that represents an increase from 1946 of 1 to 3 percent per year?

I would suppose that we might reasonably disregard the last of these three production possibilities, in view of the following considerations. (1) Agricultural production was favored during recent years by unusually good crop weather. On this ground alone, it would be reasonable to expect the production index to decline somewhat during the next few years. (2) Abnormally high prices and subsidies encouraged farmers to adopt more intensive production methods during 1942-46 than they may wish to continue after farm prices are again at more normal levels. On the other hand, such changes in farm practices may be counterbalanced by the introduction of other improvements in agricultural techniques that will lower costs of production and tend to stimulate output. I think it is impossible to foresee which of these influences will prove to be the stronger. (3) Part of the wartime increase in the index of agricultural production reflected a shift in emphasis from crops of relatively lower value per unit to crops and livestock products of higher unit value. Thus, the cotton, sugar, tobacco, and potato crops declined in relative importance, whereas animal products, oil-bearing crops, and truck crops increased in importance. This shift in composition of American agricultural production, which is broadly in line with long-run economic tendencies, may well persist; yet its influence seems unlikely to be strong enough in the near future to push the production index still farther upward.

Food Consumption Prospects

So much for the production side of the picture. Now let's look at the consumption side. American agricultural products, especially food products, have been consumed here and abroad at an unusually high rate during the past few years. Military requirements were responsible for a substantial portion of the increase. So were shipments on lend-lease account and, later, relief shipments and enlarged commercial exports. But the American civilian population also made increased demands on the nation's farmers. This is evident in the rise in the index of per capita civilian food consumption from a stable level of about 100 throughout the interwar period to 112 in 1945, and to perhaps 115 in 1946. The increase indicated by these figures primarily represents a change in composition of the average American diet—a change involving *increased* consumption of such relatively expensive foods as poultry and eggs, meat, truck vegetables, and fruits, and *decreased* consumption of sugar, potatoes, non-wheat cereals, and dried beans. Many studies show that dietary changes of this type are to be expected when income levels are shifted substantially upward, as they were for many groups of the civilian population during the war years and in 1946.

Can we expect the inflated food-consumption levels of recent years to be continued? No one can answer this question with assurance. But there are certain elements of the answer which are worth noting.

The over-all demand for American farm products depends primarily on *domestic* consumption levels, secondarily on exports to foreign countries. Over the next five to ten years, the domestic demand will be partly supported by population growth at a rate of something like seven-tenths of one percent annually. And if reasonably high levels of employment and income can be maintained, per capita domestic consumption figures seem likely to be materially higher than in the interwar period, though probably significantly below the average per capita levels for the entire population (including the armed forces) in 1944-46.

There seems to be less reason, at the moment, to be optimistic about the foreign demand for American agricultural products. After 1947 or 1948, when the period of heavy relief shipments has passed, the size of our agricultural exports will depend partly on the degree of success of the State Department's desirable efforts to bring about a reduction in world trade barriers. These exports will also depend on the willingness of the United States to accept imports and to make foreign investments. But perhaps equally important will be the agricultural price policy of this country; for if the domestic prices of our major export crops are artificially maintained at high levels, these products cannot flow to world markets except under governmental subsidies and arrangements contrary to the spirit of international economic cooperation. If world markets for farm products are not opened, the nation will be faced with critical surpluses of wheat, cotton, tobacco, and certain other export products while present acreage levels are being adjusted downward.

These considerations point to the significant conclusion that American

farmers have a greater stake in the success of programs to maintain high levels of efficient employment and trade than they have in any so-called "agricultural" or "food" program yet devised. Such favorable conditions would not solve all of the nation's prospective farm problems; technological progress, changes in demand, and basic agricultural changes in other countries would necessitate constant farming adjustments. But favorable conditions of employment and trade would insure enlarged markets for certain kinds of agricultural products, and this would facilitate needed downward adjustments in the production of crops yielding considerably lower rates of return.

Farm Income and Government Subsidies

It is pertinent to ask whether American farmers could be expected to receive reasonable incomes without special governmental intervention if employment conditions were favorable, and if American agricultural exports were moderately expanded over the average for 1930-39. Under these conditions, farm incomes would be reasonably adequate, I think for the great bulk of farmers operating at acceptable levels of efficiency; but this would presumably not be true for farmers operating inefficiently, or for those continuing to rely predominately on the production of crops in persistent surplus. Such an income situation may be said to be typical in a free, competitive economy—typical of all sorts of enterprises, trades, and professions. Nor does it seem to me that farmers should ask governmental assistance in obtaining a better deal than this, except for the purpose of covering special risks or conditions not faced by other large classes of the population. Thus, farmers could reasonably ask for the extension of national crop-insurance schemes, for limited and decreasing financial aid and guidance in making needed acreage adjustments, for special assistance in major economic depressions, and for the establishment of a sound international buffer-stocks plan. Moreover, farmers could well join with other occupational groups in demanding a unified vocational-employment service, which would make available to urban and rural communities adequate vocational and employment information, vocational-training opportunities, and employment-exchange services. These programs would help farmers to help themselves secure higher level of incomes, facilitating shifts from less to more remunerative farming activities and shifts from agricultural to non-agricultural occupations.

But I am afraid that some American farmers have become so used to unjustifiable "hand-outs" from a paternalistic government that they will want to continue to claim as their "natural right" the privilege of producing large, repetitive surpluses of various farm products at public expense. And after the pleasant price and income experiences of farmers during the past few years, many may be reluctant to regard as "reasonable" any price or income level much below wartime peaks. Already various farm leaders are talking about new demands for revised definitions of parity—mostly in the upward direction. And they are beginning to show increased concern about the nation's nutritional status—a concern that does not

extend to demands for reduced restrictions on the importation and sale of cheap and nutritious foods of foreign origin, but which is confined to programs involving governmental subsidization of consumption of higher-cost American products.

This does not mean that none of these proposed food-subsidy programs should be adopted. Several seem to me to have real merit, in that they might be expected to contribute to the public welfare at a cost reasonably commensurate with the gain. This is true, I think, with regard to proposals for marked expansion of the school-lunch and school-milk programs; proposals for supplying minimum rations of low-cost milk to all pre-school children, pregnant women, and nursing mothers; and proposals for supplying food stamps (in accordance with specific recommendations from public health and relief agencies) to families on relief and to families with members showing clinical symptoms of malnutrition.

These proposals are broadly in line with the recommendations made in 1945 by the sub-committee of the National Planning Association, headed by Dr. Black. They are aimed specifically at improving the nutrition of the children of the nation and at correcting clinical symptoms of malnutrition in low-income families.

The basic ideas and philosophy underlying these proposals are quite different, however, from those underlying the suggested National Food Allotment Program. That proposal I cannot endorse for the following reasons:

(1) It is based on the assumption that the science of nutrition has advanced to a state which makes it possible to formulate a reasonably accurate statement of nutritional requirements. This, I think, is not yet true.

(2) It is based on the assumption that each family should be enabled to purchase with 40% of its income a particular average diet pattern based on the "Recommended Dietary Allowances" of the Food and Nutrition Board of the National Research Council. I believe that this would result in the subsidization of food consumption at levels unwarrantedly high. On the one hand, the Board's figures allow substantial safety margins to provide for the food needs of individuals relatively inefficient in utilizing their food—safety margins that could well be reduced in figuring family requirements, since very few families would be composed entirely of such individuals. Moreover, the particular diet pattern specified in the Aiken Bill (S.1151) is not a *minimum-cost* adequate diet or even the well-known *low-cost* adequate diet of the U. S. Bureau of Human Nutrition and Home Economics; instead, it seems to be some sort of a compromise between the Bureau's low-cost diet pattern and its modern-cost diet pattern.

(3) The National Food Allotment Plan proposed in the Aiken Bill involves all sorts of administrative difficulties, many of which seem to defy solution. These I will not discuss because of the limited time at my disposal.

(4) I am personally opposed to a national food allotment program because I regard it as an undesirable extension of governmental "hand-outs" on a class basis. I cannot accept the analogy which Schickele and others have drawn between this program and our public school system,

since our schools are open to rich and poor alike. While it is necessary to establish certain relief programs for the low-income classes, such programs should be kept to a minimum and limited to preventing distress. They should not be extended to provide large-scale hand-outs of food or clothing to those who might get along just about as well without the hand-outs. A very significant proportion of our low-income families appear to be fairly adequately nourished, both by clinical standards and by the higher (perhaps too high) nutritional measuring sticks. And it is my belief that this percentage could be raised just as effectively by the right kind of nutritional education—beginning with the children in the schools—as by an expensive, paternalistic, and in some degree pauperizing food allotment plan.

Thus far I have said nothing about agricultural surpluses that might develop temporarily—as the result of declining demand in a sharp economic recession that the government proved incapable of preventing. Under such conditions, I believe that a greatly expanded program of food-consumption subsidization would be entirely appropriate, mainly as a depression-rescue measure for American farmers, though secondarily as a means of putting to some good use food surpluses that already existed. But such a program should not be put into operation until agricultural prices had declined substantially (although not drastically) from normal predepression levels. And the program should be labeled clearly to indicate its temporary nature as an anti-recession rescue measure. It should not be camouflaged as a “national nutrition program,” nor allowed to develop along lines that would encourage the production of recurrent surpluses.

NUTRITIONAL ASPECTS AND FARM FAMILY NEEDS IN A FOOD AND NUTRITION POLICY

MARGARET G. REID

U. S. Department of Agriculture

My remarks relate to no one central theme but rather to some aspects of food and nutrition policy not covered by other discussants.

The Interrelation of National and International Policies

First I would like to consider briefly a criticism made yesterday of Dr. Schultz' paper “International Trade and Food Policies,” namely that although he accepted better nutrition as one of the three goals to be achieved, he had nothing constructive to say with respect to its place in the international program.

The most important parts of the U. S. nutrition program now largely past the controversial stage consist in the main of education, research including field studies of food consumption and nutritional status, enrichment of such foods as cereals and margarine, and school feeding. A program to distribute food and to increase purchasing power earmarked for food to those most likely to be malnourished was tried in the food stamp

plan, and a similar program has been proposed in the Aiken bill. Means of carrying through such programs are still in a very controversial stage.

Education and research in nutrition now have a place in international policy in the program of the Food and Agriculture Organization. This organization is also prepared to assist countries in evaluating needs and developing suitable policies to raise the adequacy of diets. No international policy exists, however, for subsidizing food supplies to be sent to countries whose food consumption is at very low levels, except in emergency situations.

A policy of this kind might be accepted as a means of disposing of surplus foods only, or it might be genuinely directed to wiping out malnutrition wherever found. In view of the absence of an internal policy of the latter type in the United States, it seems hardly likely that such an international policy will get acceptance in the United States. On the other hand, subsidizing surplus foods for shipment to needy countries in order to maintain internal prices might find ready acceptance at least for a few years even though internal and external objections might later lead to its discontinuation.

The question arises whether such disposal of "surplus" foods offers an important contribution to world nutrition. The answer seems to be "yes." Although people's need for food is independent of fluctuations in food supplies, the need for outside assistance for increasing food supplies is urgent in many countries.

A policy to dispose of surpluses even though nutrition may be incidentally benefited is a far cry from a policy to eliminate malnutrition wherever it is found. It seems highly probable that such an objective in international policy must await its acceptance in major countries, especially those called upon to make substantial contributions to such a world food program.

The School Lunch Program

Some of the benefits of the school lunch program as a means of improving nutrition have already been pointed out. It seems important to emphasize that school children tend to concentrate in families with low per capita income where the percentage with low diets tends to be high.

The school lunch program is first and foremost a nutrition rather than a surplus disposal program. Its expansion in the next few years should increase food consumption somewhat and to that extent should reduce food surpluses. Moreover, if it continues unchanged through periods of low and high levels of employment, it will put a floor under at least a part of the market demand. Furthermore, some expansion of the consumption of foods in large supply, and some contraction in the serving of scarce foods may be possible under the program. In making such shifts, consideration should be given to nutritional effects and the limited acceptability of increased quantities of various foods because of food habits and facilities available in schools to store and prepare food.

Nutrition Research

Dr. Maynard has already stressed the importance of research in a well-balanced food and nutrition program. More research is needed in order to understand more fully the factors causing the nutrients in foods to vary according to breeding, feeding, fertilizers, methods of processing or food preparation in homes and restaurants; to gain fuller knowledge of nutritional needs, to learn much more of the incidence of subclinical malnutrition in all groups of the population, and to have more complete facts on present food consumption. Since 1935-36, no large-sample family dietary studies have been made permitting regional comparisons. Very limited information exists on the consumption of separate foods by income, family type, regions and seasons as a measure of potential demand. Studies of waste are needed to trace the flow of food through markets and into homes so that actual ingestion of nutrients can be estimated with a fair degree of accuracy.

Farm Families in the Nutrition Program

Food and nutrition policy with respect to farm families tends to focus on income improvement. This would undoubtedly promote better nutrition; so would nutrition research, education and school lunches insofar as these reach farm children. It seems important to give separate consideration to farm families, because of the mistaken notion widely held that producers of food must surely have good diets, and because ways of securing better nutrition for farm families have certain unique features.

The absence of data indicating incidence of dietary inadequacy among farm families led the BHNHE in the late spring and early summer of 1945 to get data on food consumption for a 7-day period from a sample of open-country families in one county in Ohio and one in Georgia. The counties selected were a little below the average farm income for their respective regions as reported by the 1940 Census of Agriculture. This selection was made in order to have a sample adapted to the analysis of the differences in level of diet of families having low and moderate incomes and by types of tenure in Georgia.

Some preliminary data are now available. In the Ohio county 22 percent of the families reporting had "poor" diets, that is having 70 percent or less, for one or more nutrients, of the recommended allowances of the National Research Council. In the Georgia county the percentages for white and Negro families were 31 and 63 respectively. Among the Georgia white families, 20 percent of the operators, i.e., owner operators and cash and share tenants, and 50 percent of the sharecroppers and laborers had "poor" diets. For Negro families the percentages were 47 and 73 respectively. These differences are in part due to income and family size. Although the sample is small, the evidence seems fairly conclusive that tenure as between operators and sharecroppers in Georgia is also an independent factor.

White operators in Georgia got 58 percent of their food from their farm¹ and white sharecroppers and laborers only 46 percent. Negro operators got 66 percent and Negro sharecroppers and laborers only 40 percent. The annual per capita dollar values of the farm-furnished food in the Georgia county were as follows:

	White	Negro
Operators	\$107	\$98
Sharecroppers	69	41

An attempt was made to explore the ideas of families about their diets and factors affecting them. Families were asked why they weren't getting enough of the foods. Shortages, expenses and "don't raise" were the major reasons given. Among white families the percentage giving expense as a reason went down consistently with increase in family income. For Negro families the tendency was not so clear-cut. "Don't raise" came first as a reason and was given by 28 percent of all white and 51 percent of all Negro families.

Families reporting failure to get enough food because it was not raised was much higher among the sharecroppers and laborers than among the operators: 14 percent of the white operators and 44 percent of the sharecroppers and laborers reported that they did not get enough food because they did not raise it. For the Negro group, the proportions were 35 and 56 percent respectively.

Families were further asked "Why don't you raise them?" (the foods needed). Lack of space was by far the most important reason given and was much higher among sharecroppers and laborers than among farm operators. Ten percent of the white and 5 percent of the Negro operators reported failure to raise foods needed because of lack of space. The percentages for the white and Negro sharecroppers and laborers were 46 and 53, respectively.

Few people would contend that to transform sharecroppers to operators would lead all or even those who now might give lack of space as a reason for relatively low farm-furnished food, to expand such food to the level achieved by operators. Habits of long standing and lack of skills would only slowly be modified. But differences such as are shown in these studies point to the need, if nutritional levels of important segments of the population are to be raised, for change in tenure arrangements of sharecroppers that would permit and even encourage more farm-furnished foods.

¹ Farm furnished foods were valued at farm prices.

ANNUAL BUSINESS MEETING AMERICAN FARM ECONOMIC ASSOCIATION

DECEMBER 28, 1946, BENJAMIN FRANKLIN HOTEL
PHILADELPHIA, PENNSYLVANIA

Report of the President

During the past year the Association has made good progress. We have not had the excitement (nor the work) of a prize contest. But the members of the Association have taken a very active hand in shaping our policies and programs. Our members are keenly aware of new economic developments. They see the need of strengthening our research, teaching, and service work in agricultural economics. They have shown a remarkable willingness to make suggestions, to work on committees, to write papers, and to undertake other responsibilities for the Association.

It has been a great honor to serve as your president. The cooperation of the members has made the job pleasant. I have no doubt that the Association will continue to grow, both in size and importance.

I shall report briefly some of the main developments during 1946, and shall make a few suggestions to the members and to the incoming officers of the Association.

Asher Hobson's Retirement as Secretary-Treasurer. Asher Hobson informed us last year that he wished to retire as Secretary-Treasurer. He has handled this job for us well and faithfully for fifteen years. In this time he has doubtless done more hard work for the Association than any other person has ever done. His work has been without pay. As Secretary he has carried on extensive correspondence and has watched over the details of all Association arrangements with efficiency and with unfailing good humor. As Treasurer he has left the Association in a strong financial position. The Executive Committee felt that it could not ask Asher to give another fifteen years to this job, and reluctantly decided it would have to look for someone else.

We are glad to report that Larry Norton has agreed to be nominated as Secretary-Treasurer. We feel that it is quite fitting that this key job should be assigned to a former president of the Association.

Membership Poll. Early in 1946, I sent a questionnaire to all members to get their suggestions on several matters of Association policy. I got back about 300 completed questionnaires, supplemented by perhaps 50 letters and another 50 phone calls and conversations. The questionnaires, letters, and personal discussions gave your officers plenty of ideas to work on during the year. The program of this meeting reflects many of these suggestions. The choice of Larry Norton as nominee for Secretary-Treasurer is also in line with the views of the members. They suggested 67 different possible candidates for the job. Larry was at the top of the list.

On the subject of annual meetings, our membership seems to be split. I shall discuss this subject next. First, I want to thank the members for

their excellent response, and to recommend similar polls in future years. Every member should have a chance to make suggestions—and to register kicks.

Meetings. We have no clear mandate from the members concerning annual meetings.

At least two major questions need to be decided:

(1) Should we meet separately, or should we hold joint meetings with other associations?

(2) Should we continue to meet during the Christmas holidays?

On these two questions our membership seems to be sharply divided. About one-third of the members wants separate meetings; about one-third wants joint meetings; and about one-third wants to alternate, with joint meetings every other year.

I strongly recommend that we try to arrange to meet with other social science associations at least every other year. Most of us cannot attend several meetings a year. Yet we should be keeping in touch with developments in general economics, in sociology, in statistics, and in other subjects related to our work.

A majority of our members indicated a preference for meeting during the Christmas holidays. There were noticeable differences of opinion on this point, however. The college groups in the East and Midwest like the Christmas holiday date. Non-college members, and those from the Far West want to change the date.

This year we seriously considered meeting jointly with the American Economic Association and the American Statistical Association. This would have meant meeting in January at Atlantic City. We decided that this would not be practicable, and finally agreed to another separate meeting during Christmas week. With Christmas on Wednesday, this gives us only two days. We need at least three days for a good meeting. I apologize for the crowding of our program of last night and this morning. We could find no way to avoid this, and still provide a number of round tables and committee programs.

We need a lot of round table sessions to get active participation from our young members. In fact, I wish our present program could have gone much further along that line.

I hope we can have a three-day meeting in the future. The dates must, of course, be agreeable to the members. It does seem strange to me that many of our college people say they can not get away except during Christmas vacation. Evidently the general economists and statisticians can. Perhaps we need to work on the college presidents and deans.

The Journal. The JOURNAL is the one thing all members get for their \$5 dues. It has always been worth the price. I feel, however, that we should be aware of a real improvement in the quality of JOURNAL papers this year.

The improvement is due largely to the patient and understanding work of the editor, Warren Waite.

Membership. We need more members. I have two suggestions for getting them:

(1) that we publish a directory listing the name and address of each member; and

(2) that we distribute as widely as possible a short statement describing the Association, and emphasizing that any interested person is eligible to join.

Proposal for Joint Membership with the Western Farm Economics Association. The following proposal was worked out in correspondence with Marion Clawson, last year's President of the Western Farm Economics Association:

"1. Membership in both Associations to be available for \$6 a year. Of this, \$1.50 to go to the WFEA and \$4.50 to the AFEA.

2. Separate memberships to be available, as before, on the basis of \$2.00 for WFEA and \$5.00 for AFEA. However, both associations will encourage joint membership.

3. Proceedings of the WFEA to be published in full and sent to all joint members and to members of WFEA.

4. WFEA to have full responsibility for the publication of the proceedings of WFEA, to pay the cost of it, and to receive revenues from its sale to non-members.

5. Members of AFEA who do not take joint membership shall continue to receive the JOURNAL, but not the WFEA proceedings.

6. President of WFEA to be a member of the Executive Committee of AFEA."

This outline is taken from a letter I wrote to Mr. Clawson on June 10, 1946. Mr. Clawson presented it to the Western Farm Economics Association at its annual meeting in June. The proposal has since been accepted by the members of that association, subject to the acceptance of our own membership.

Phil S. Eckert, this year's President of the Western Farm Economics Association, is here today and is prepared to discuss the proposal.

I recommend that we accept the proposal for joint membership, and that we take whatever steps may be needed to put it into effect immediately. Your Executive Committee has considered this proposal carefully and has approved it unanimously.

Committees. It is not necessary for me to comment here on all six of the special committees that have been at work this year. Each of them has arranged a program for this morning, and will be prepared to report its progress.

However, I should comment briefly upon one committee that I did appoint, and upon another that I did not appoint.

I did appoint a Committee on National Science Foundation Legislation. This was in line with a vote at the 1945 business session that we take appropriate steps to follow proposed legislation in this field and to keep our membership informed. In addition, I was recently made a member of a Social Science Research Council Committee on Research and the Federal Government.

We will need your guidance on this matter. So far the social sciences have received little recognition in proposed bills. Should our Association,

either independently, or through the Social Science Research Council, help to get a better presentation of the need for Federal support to research in the social sciences? If so, what should we do, and what should we avoid?

The committee I did not appoint is one to consider work to be done under the Research and Marketing Act of 1946. This subject is extremely important. I believe the colleges and the U. S. Department of Agriculture have the chance of a lifetime to develop a real, comprehensive program to improve the marketing of farm products and foods. Our association should take a very active interest in this matter. However, the plans of the U. S. Department of Agriculture and the colleges were not far enough advanced by last fall to give a committee much on which to work.

Instead of appointing a committee on this subject, I arranged for a round table. It was held last night. Early in December I had a chance to go over plans with Leland Spencer and several members of his round table. I would like to urge the incoming officers of the association to appoint a committee or to take some other appropriate action to help the federal and State agencies develop a strong marketing program.

On this matter, too, we should cooperate closely with the Social Science Research Council. That Council has expressed an interest in reviewing marketing research and in helping develop better work in this field. We welcome the help of the Council. Any marketing committee of this Association should work closely with the Council.

Recognition of Special Merit. Your officers and Executive Committee have discussed for many years the problem of recognizing outstanding accomplishments in agricultural economics. The Distinguished Publication Award is one result. I think it has served a real purpose and should be continued.

But one award a year is not enough. I recommend that a small committee be set up to consider more widespread recognition of special merit. One possibility that should be considered is that of designating a limited number of Fellows of the Farm Economic Association. If the committee finds that such a step is desirable, it should propose to the 1947 annual meeting appropriate measures for choosing an initial group of Fellows and for selecting additional Fellows from time to time.

I am well aware of the danger that the designation of Fellows may, like honorary college degrees, become honors that are not earned and are given to old men, too late to do them any good. But I think we could guard against this by making sure from the start to include a reasonable proportion of young men and women in our list of Fellows and perhaps by declaring past presidents ineligible.

(Signed) FREDERICK V. WAUGH
President

Received and ordered printed in the JOURNAL.

Report of the Secretary-Treasurer

I. The Fiscal Year Ending November 30, 1946

Membership—At the close of the fiscal year the total membership of the Association numbered 1,448. This is the highest number on record. The

highest number for any previous year was 1,269 for the year 1939. It is an increase of 283 as compared to last year. The increase was general for all classes with the exception of United States libraries and firms. This was to be expected. The war had a depressing effect upon Junior and foreign memberships. The unsettled situation in the United States resulting from the war held down domestic individual membership numbers. The following tabulation gives the comparison by groups.

	1946	1945	<i>Increase '46 over '45</i>
Individual Members.....	965	835	130
Junior Members.....	79	10	69
U. S. Libraries & Firms.....	244	229	15
Foreign Libraries & Firms.....	160	91	69
	<u>1,448</u>	<u>1,165</u>	<u>283</u>

The above table does not include for either year, 35 subscriptions of the *JOURNAL OF FARM ECONOMICS* by the American Library Association for future distribution to libraries in foreign countries.

Finances—The Association ended the year with a balance from operations, of receipts over expenses of \$1,972.83. This is a slight increase over the figure for last year. Operating income was up somewhat, and operating expenses slightly lower due to extraordinary expenditure in 1945, namely, the Farm Price Policy Contest, and the meeting of the Executive Committee in Washington.

The non-operating income—returns on investments—amounted to \$1,164.46. This is some \$385.00 lower than that of 1945. The decline is due to a loss of \$379.94 on securities sold as compared to their market value at the close of the last fiscal year. The sale of securities during the year netted a gain of \$2,140.13 when calculated on a cost basis. The Investment Policy Committee sold most of the Association's stocks during the year under review. Consequently, the dividends received on most stocks were for periods of less than a year. The total net returns from operations, interest, and dividends, for the year were \$3,137.29. The Association's assets at the close of year were:

Cash in bank.....	\$35,599.36
Stocks, Market Value.....	7,242.60
U. S. Government Bonds, Market Value.....	9,805.00
	<u>\$52,646.96</u>

If stocks were calculated on a cost instead of a market value basis, the total assets would be \$51,832.20. In other words, the stocks now held have a market value of \$634.76 above their cost to the Association. A complete report of investment transactions during the year has been submitted to the Executive Committee. The details of this year's operations are shown in the following table:

ANNUAL BUSINESS MEETING

OPERATING STATEMENT
AMERICAN FARM ECONOMIC ASSOCIATION
YEAR ENDING NOVEMBER 30, 1946

	1946	1945
<i>Operating Income</i>		
Receipts from Dues.....	\$7,091.99	
Back Numbers Sold.....	744.05	
Reprints Sold.....	333.99	
Advertising Sold.....	65.00	
	<hr/>	
	\$ 8,235.03	\$ 7,405.74
<i>Operating Expense</i>		
JOURNAL OF FARM ECO-		
NOMICS		
Vol. XXVIII, 4 issues...	\$4,546.29	
3 reprints.	648.28	
	<hr/>	
	\$5,194.57	\$ 3,952.68
Clerical and Editorial Ex-		
penses.....	\$ 320.65	
Annual Meeting Expenses	186.96	
Postage and Wires.....	166.67	
Best Article Award, 1945..	100.00	
Back Numbers Purchased..	67.00	
Office Supplies.....	60.19	
President's Expenses, 1945.	30.59	
Price Policy Poll.....	25.09	
Binding Farm Price Policy		
Papers.....	16.00	
Auditor's Expenses, 1945..	22.29	
Parity Concept Committee	21.60	
Surety Bond.....	17.50	
Secretary's Travel.....	17.13	
Addressing Envelopes....	11.76	
Safe deposit Box.....	4.20	
	<hr/>	
	\$1,067.63	
	<hr/>	
	\$ 6,262.20	\$ 5,613.12
Excess, Receipts above Operating Expenses.....	\$ 1,972.83	\$ 1,792.62
Plus Non-operating Income		
Dividends and Interest, Stocks.....	\$1,544.40	
Loss on Sale of Stocks under market		
value, December 1, 1945.....	379.94	
	<hr/>	
	\$ 1,164.46	\$ 1,549.86
Total Excess, Receipts above Expenses.....	\$ 3,137.29	\$ 3,342.48

FINANCIAL STATEMENT
AMERICAN FARM ECONOMIC ASSOCIATION
DECEMBER 1, 1946

<i>Assets</i>		
Cash, Bank Balance.....	\$35,599.36	
Stocks, Market Value.....	7,242.60	
Bonds, Market Value.....	9,805.00	
	<hr/>	
	\$52,646.96	\$50,614.07

Proprietary Interest

Net Worth December 1, 1945.....	\$50,614.07
Plus Net Returns for Year	
Operating.....	1,972.83
Non-operating.....	1,164.46
Increase Market Value, Bonds.....	30.00
	<hr/>
	\$53,781.36
Decrease Market Value Stocks under	
December 1, 1945.....	1,134.40
	<hr/>

\$52,646.96 \$50,614.07

II. The Fifteen Year Period, 1932 to 1946 Inclusive

The retiring Secretary-Treasurer thought it desirable to present a summary report covering his fifteen years in that office.

Membership—Membership numbers have increased from 971 in 1932 to 1,448 in 1946—an increase of 477. This is not a satisfactory record. It may be explained in part by the depression and by the war years. Membership numbers actually decreased from 1932 until 1934 inclusive. The same thing happened from 1941 to 1945, inclusive. No sustained membership drive has been conducted since our entry into the war. The one outstanding exception to this generalization is the untiring efforts of Mr. S. W. Mendum on behalf of the Association among government personnel in Washington. I take this opportunity to express publicly my appreciation of Mr. Mendum's assistance. The increased turn-over of membership, together with the shifting locations of active and prospective members did not furnish a fruitful environment for membership solicitation. With the return of more stability in locations and positions of prospective members, it seems likely that efforts to increase membership numbers will yield more gratifying results. The following table, by years and for classified groups, gives the fluctuations in membership numbers for the period.

MEMBERSHIP BY GROUPS, 1932-1946, INC.

<i>Year</i>	<i>Total</i>	<i>Individuals</i>	<i>Juniors</i>	<i>U. S. Libraries and Firms</i>	<i>Foreign Libraries and Firms</i>
1932	971	675		163	133
1933	906	622		157	127
1934	941	613		197	131
1935	1,088	739		199	150
1936	1,120	765		198	157
1937	1,191	*		*	*
1938	1,229	*		*	*
1939	1,269	889		214	166
1940	1,248	898		209	141
1941	1,255	919		207	129
1942	1,027	707	41	202	77
1943	1,117	806	23	214	74
1944	1,102	767	17	227	91
1945	1,165	835	10	229	91
1946	1,448	965	79	244	160

* Breakdown not reported for these years.

Membership Handbook—The office of the Secretary-Treasurer issued in 1939 a directory of members by name and post office address listed alphabetically and in a separate listing classified by states and by countries. The directory should have been revised in 1941 or 1942, but here again the increasing tempo of shifts both in members and in their location made such a revision inadvisable until after the close of war activities. No doubt the new Secretary-Treasurer will give early consideration to the need for a new directory.

Financial Policy—Dean W. I. Myers turned over at the close of his term of office as Secretary-Treasurer at the end of 1931, a balance amounting to \$6,788.68. This was a real start toward the Association's present net worth of \$52,646.96. Accumulations during the past 15 years have been \$45,858.28. (\$52,646.96 - \$6,788.68). The sources of these accumulations were:

Net Operating Revenues.....	\$25,902.45	56.5%
Interest and Dividends.....	14,708.67	32.1%
Profits on sale of Securities.....	5,247.16	11.4%
	<u>\$45,858.28</u>	<u>100.0%</u>

The accompanying table gives the year to year increase in net worth, classified by sources of income.

SOURCES OF NET INCOME, 1932-1946 INCLUSIVE

Year	Total Net Income	Operations	Interest & Dividends	Market Price of Securities	Net Worth
1931	6,788.68*				\$6,788.68*
1932	922.80	\$ 526.68	\$ 396.12		7,711.48
1933	1,056.34	737.94	318.40		8,767.82
1934	1,819.26	1,449.26	370.00		10,587.08
1935	3,201.78	2,048.18	404.65	\$ 748.95	13,788.86
1936	2,708.61	2,251.92	456.69		16,497.47
1937	2,751.10	2,188.05	581.61	-18.56	19,248.57
1938	3,029.62	1,891.82	877.55	260.25	22,278.19
1939	2,867.52	1,981.56	818.11	67.85	25,145.71
1940	3,180.70	1,986.57	1,194.13		28,326.41
1941**	-2,726.44	1,915.62	1,480.26	-6,122.32**	25,599.97**
1942	2,725.66	1,274.35	1,544.78	-93.47	28,325.63
1943	7,884.79	1,309.17	1,765.50	4,310.12	35,710.42
1944	7,836.30	2,575.88	1,406.61	3,353.81	48,046.72
1945	7,567.35	1,792.62	1,549.86	4,224.87	50,614.07
1946	2,032.89	1,972.83	1,544.40	-1,484.34	52,646.96
	<u>\$52,646.96</u>	<u>\$25,902.45</u>	<u>\$14,708.67</u>	<u>\$5,247.16</u>	

* Balance on hand at beginning of the 15 year period under review.

** Changed from cost to market value basis in determining value of securities.

Printing Costs—The cost of printing the JOURNAL has increased from \$2,933.82 in 1931, the year immediately preceding the period under review to \$5,194.57 for 1946. This increase has been due in part to the increased size of the JOURNAL, in part to an increase in the total number of copies printed, and in part to increases in printing rates. Printing costs

were increased in 1942. Our printing contract is now up for revision of rates. The rate effective with the November 1946 issue amounts to an increase in the neighborhood of 20 percent. This places the average cost per volume slightly in excess of \$3.00.

Back Numbers of the Journal—The Association has a stock of 12,571 copies of the JOURNAL, not including indexes and handbooks. The Association is able to supply complete sets with the exception of two numbers in the earlier volumes. These back numbers become increasingly important and their sale contributes substantially to the income of the Association.

For purposes of the record, the back numbers on hand are listed by volume and number in the accompanying table.

INVENTORY OF BACK NUMBERS OF THE JOURNAL OF FARM ECONOMICS

<i>Year</i>	<i>Vol.</i>	<i>No.</i>	<i>No. of Copies</i>	<i>Year</i>	<i>Vol.</i>	<i>No.</i>	<i>No. of Copies</i>
1919	I	1	3	1929	XI	1	171
		2	6			2	183
		3	1			3	179
1920	II	1	19	1930	XII	4	186
		2	9			1	193
		3	11			2	169
1921	III	4	9	1931	XIII	3	161
		1	0			4	147
		2	1			1	201
1922	IV	3	16	1932	XIV	2	159
		4	21			3	159
		1	2			4	193
1923	V	2	1	1933	XV	1	248
		3	2			2	228
		4	0			3	244
1924	VI	1	3	1934	XVI	4	318
		2	14			1	286
		3	28			2	169
1925	VII	4	29	1935	XVII	3	209
		1	5			4	232
		2	26			1	288
1926	VIII	3	230	1936	XVIII	2	229
		4	65			3	235
		1	17			4	234
1927	IX	2	33	1937	XIX	1	14
		3	41			2	130
		4	16			3	153
1928	X	1	32	1938	XX	4	121
		2	7			1	93
		3	30			2	55
1929	XI	4	18			3	137
		1	99			4	97
		2	83	1939	XXI	1	243
1930	XII	3	62			2	255
		4	145			3	232
1931	XIII	1	246	1940	XXII	4	267
		2	98			1	144
		3	88			2	230
1932	XIV	4	50			3	187
						4	209

<i>Year</i>	<i>Vol.</i>	<i>No.</i>	<i>No. of Copies</i>	<i>Year</i>	<i>Vol.</i>	<i>No.</i>	<i>No. of Copies</i>
1939	XXI	1	200	1943	XXV	1	189
		2	242			2	94
		3	229			3	76
		4	194			4	120
1940	XXII	1	92	1944	XXVI	1	201
		2	193			2	96
		3	198			3	66
		4	162			4	69
1941	XXIII	1	111	1945	XXVII	1	52
		2	150			2	7
		3	185			3	47
		4	150			4	82
1942	XXIV	1	173	1946	XXVIII	1	0
		2	73			2	7
		3	120			3	17
		4	158			4	141
							12,571

Future Financial Policy—One of the important questions now before the Association is that of future financial policy. Shall it be one of continuing to build reserves, or shall it be one of expansion of Association activities at the expense of increased reserves? This question has been raised from time to time in the Executive Committee, and I am sure it is one over which many members have pondered. It is my own reasoned conclusion that it was prudent to build our present reserves, and with these reserves the Association is now in position to expand its activities without the constant threat of insolvency.

The reasons for building a reserve should be clearly stated. The Association has never been self-supporting from the standpoint of operating income. It would not be self-supporting today even with the income of its reserve added to operating income, if it paid for stenographic and secretarial services required by the President, the Editor, and the Secretary-Treasurer. The reserve has not been accumulated through reduced services to members. It has been built through subsidies by the institutions with which its Presidents, Editors, and Secretary-Treasurers have been connected. As the demands for clerical and secretarial assistance grow, it is not at all certain that these subsidies will be continued in whole or in part.

During the past 15 years the size of the JOURNAL has been increased from 676 pages in 1931 to 1,126 pages in 1946. The Association sponsored and defrayed the administration expenses of the Farm Price Policy Contest. It has established an award for the outstanding article appearing in the JOURNAL each year. It has published a membership directory, and in the war years in the absence of annual meetings, it financed meetings of the Executive Committee. In addition the Association has substantially increased its inventory of back numbers of the JOURNAL which will become of increasing value as time elapses. These increased activities are advanced as evidence that the officers of the Association and members of the Executive Committee have been keenly aware of their duty to furnish increased services to members.

While the building of a reserve has been the outstanding aim of the Secretary-Treasurer, it could not have been accomplished without the full support of the Executive Committee and the cooperation of the membership. For this support and cooperation, the Secretary-Treasurer is deeply grateful. He would be unmindful of his duty if at the same time he did not express his sincere appreciation to the other members of the Investment Policy Committee—A. C. Fiedler of the Northwestern Mutual Life Insurance Company, and W. H. Ebling of the Federal-State Crop and Livestock Estimating Service for Wisconsin—for their unfailing interest and helpful counsel.

Expansion of Association Activities. If the Association is to embark upon a program of expansion, what lines should such an expansion follow? While the answers to this question must come from the Executive Committee, and receive the approval of the membership, I hope I may not be considered out of order in offering a few suggestions.

Proceedings Number of the Journal. Your Secretary-Treasurer has long felt that the Association should issue a Proceedings Number in addition to the four quarterly issues. The thought is that the four quarterly issues should be limited to a total of 800 pages and the Proceedings number to 400 pages, making a total of 1,200 pages instead of the present 1,000 pages. There have been two considerations which have prevented the active promotion of this point of view. 1) The lack of a sufficient number of acceptable articles to fill the four quarterly issues without increased efforts on the part of the editor, and 2) the added burden on the office of the editor in issuing a fifth number each year. Indications are that the voluntary contributions are now of sufficient quality and number to permit an increase of 200 pages for the four regular issues. The second handicap might be overcome by placing the responsibility for editing the Proceedings issue in the hands of the President, or in the hands of the President and his program committee, (the President and program committee who formulated the program upon which the specific Proceedings Number is based). At any rate the above suggestions are strongly recommended for consideration by the officers, the Executive Committee, and the members of the Association.

Directory. It is believed advisable to issue a new directory at an early date. It would be helpful if the directory included in addition to the name and address of the member, the institution or firm with which he is connected, together with an indication of his principal field or fields of interest. These recommendations are passed along to the new Secretary-Treasurer for consideration.

Special Grants Committee. The standing of the Association is probably such as to enable it to attract outside funds in modest amounts. Such funds, however, seldom come unless actively solicited. It seems opportune to create a committee with the specific task of soliciting funds from those who may be willing to further the work of the Association. Professor Norton in his presidential report last year, touched upon this subject. The work of this committee would in all likelihood, yield greatest results if the committee sought support for specific projects which had previously been outlined and approved by the Executive Committee.

Library Custodian. It is hoped that you will not dismiss as visionary the suggestion that the Association appoint a library custodian. The duties of this custodian would be that of collecting in the name of the Association and holding as the property of the Association, such publications in the field of Agricultural Economics as he is able to acquire. It is assumed that most of the acquisitions will be by gift. Certainly most, if not all members of the Association will be willing to contribute one copy of each of their publications—autographed. Assuming that the existence of the Association is in perpetuity (I make no other assumption), such a collection at the end of 100 years would be exceedingly valuable, at least from a cultural standpoint. If the Association should ever establish permanent headquarters, which is not beyond the realm of possibility, such a collection would be a prized asset. Agricultural Economics is a young discipline. Even so, most of the publications of its early workers are out of print and many are not to be had. If the project is worthy, it should be undertaken without delay. If undertaken, the custodian should report his acquisitions in the JOURNAL each quarter, probably in the notes section, and also render a report to the Executive Committee each year. While this proposal comes under the heading of expanded activities, it is put forward with the thought that its requirements in the way of funds would be slight.

Revision of the Constitution. Our Constitution needs to be revised in order that it fulfill the growing needs of the Association. The Association has experienced difficulty with transfer agents in the sale of securities. Some transfer agents call for a copy of the Constitution or By-laws with specific reference to a provision granting authority to the Secretary-Treasurer to transfer title to Association property. Unfortunately there is no provision in our Constitution that specifically grants this authority to any officer of the Association. There should be such a provision.

If you approve the proposal of a closer relationship with the Western Farm Economic Association, provisions will need to be made in the Constitution for this move.

Honoraria. This proposal may seem odd coming from one whose main efforts during the past 15 years have been those of discouraging expenditures on the part of officers of the Association, but the time has come when the Association may well consider the advisability of allotting each year a fixed sum of modest proportions to the office of the President. Under existing regulations the President is reimbursed only for postage, wires, and telephone expenditures, incurred in conducting Association business. The President should have at his disposal a sum sufficient to meet emergencies such as convening the Executive Committee or convening some special committee dealing with pressing problems which demand the Association's immediate attention.

The Editor is allotted not to exceed \$250.00 per year for editorial and clerical assistance—if actually expended. The Editor is also allowed travel expenses incurred in connection with the annual meetings. The \$250.00 allotment might well be increased.

The only reason the Secretary-Treasurer is not included in these pro-

posals is that existing regulations cover fairly well incidental expenses connected with his office. These have been kept to a minimum, but under a policy of expansion the Secretary-Treasurer should feel free to follow a more liberal policy with regard to expenditures by his office.

These suggestions are put forward with the realization that the adoption of all of them would probably increase expenditures to a point exceeding receipts. They are proposed with a view to stimulating discussion which may be used for promoting wise selection. It is appreciated further that others may have equally useful proposals.

May I close this report with the conviction that the policies adopted will be in the best interests of the Association, and at the same time, express the hope that your Executive Committee will attempt to maintain its reserves, and limit expenditures to current income.

Respectfully submitted,

ASHER HOBSON, *Secretary-Treasurer*

Report received and ordered printed in the JOURNAL.

Report of the Auditor

In accordance with the request of the President of the American Farm Economic Association, I have examined the accounts of the Secretary-Treasurer for the year ending November 30, 1946. All entries were checked against supporting vouchers and found in agreement. The assets of the Association were checked by examining bank statements and checking the securities owned by the Association.

The books of the American Farm Economic Association for the past year have been neatly and efficiently kept, and I certify that the financial statement made by the Secretary-Treasurer reflects the financial situation of the Association as submitted by his records.

Respectfully submitted,

WALTER H. EBLING, *Auditor*

December 20, 1946

Report accepted as read.

Report of the Editor

During the past year there were exactly one hundred different persons who had contributions in the way of articles, discussions, notes or reviews published in the JOURNAL. The number of contributed manuscripts increased during the year relative to the two preceding years, and was ample to more than fill the space allotted to the Editor. The Editor is subject to censor from the Executive Committee for exceeding his allotted space. Late in the year the publishers announced with reluctance that due to rising costs they would have to charge more for the publication of the JOURNAL. The increase amounts to about 20 percent.

These changes have raised some questions of policy. There is a conflict between rising costs and increasing demands for space. The Executive

Committee has met the problem by authorizing four regular issues of the JOURNAL as well as a Proceedings number in 1948. This will provide for more space for contributed articles, although at the same time increasing the duties of the Editorial Office. It is hoped that members and others will contribute sufficient articles of merit to warrant full utilization of this space.

A review of the JOURNAL for the past two years makes it evident that the Editor must insist upon some reduction in the length of the longer articles. The average length of articles this past year was 15 pages. This was an increase of one page over the preceding year, and 1.7 pages over 1944. The increase is largely chargeable to the Report of the Committee on the Adjustments of Southern Agriculture and three articles which exceeded thirty pages in length. The difficulty with curtailing the length of articles is that it involves a considerable amount of editorial time unless each paper is returned to the author with a blanket suggestion that it be cut down in length. Careful work here may provide space for one or two additional articles. The note section got most out of hand with an increase in average length of note from about 4 pages in 1945 to 7 pages in 1946. Notes are naturally more difficult to shorten than articles.

The JOURNAL this year included 1,142 pages. Approximately seventy-six percent of this space was devoted to articles and about twelve percent to notes and the remainder to annual reports, news notes, the index and advertising. There were 57 articles, 21 notes and 22 reviews. The division of the printed matter during the year was as follows:

<i>Issue</i>	<i>Articles including discussions</i>	<i>Notes</i>	<i>Reviews</i>	<i>News Items</i>	<i>Annual Report</i>	<i>Other</i>	<i>Total</i>
February.....	397				11	4	412
May.....	147	48	18	7	—	4	224
August.....	186	39	16	8	—	7	256
November.....	129	60	34	8	—	19	250
Total.....	859	147	68	23	11	34	1,142

The selection of the outstanding article of the year was made in the same manner as last year. The membership was provided with a printed ballot, and together with the information from this ballot and the opinions of a committee composed of F. V. Waugh, F. F. Hill, E. C. Young and the Editor, the selection was made. The variety of interests of the membership is again indicated by their balloting on the outstanding article. Every article except two in the regular issue had at least one vote from the membership as being among the best three articles published during the year. There were twelve papers in the proceedings issue that received no vote. The second year's experience with the membership vote and the selection of the award article emphasizes the difficulties of the inclusion of the November issue in the group of articles to be considered. Consideration will be given to its inclusion in the following year.

The Editor wishes to acknowledge the cooperation of the Editorial Council throughout the year and the assistance of the Associate Editors. Professor E. Fred Koller was on leave during a portion of the year, but

we were fortunate in securing Professor Rex W. Cox to assume his duties. We urge the members to continue to support the JOURNAL with contributions and to inform us of prospective sources of outstanding contributions.

Respectively submitted,
WARREN C. WAITE
Editor

Report accepted as read.

Report of the Executive Committee

The following minutes of the meeting of the Executive Committee of December 26, 1946, were reported at the business session for the information of members.

The report of the Investment Policy Committee is accepted, and the Executive Committee expresses its appreciation of the excellent manner in which the investments of the Association have been handled during the past 15 years. The Secretary is instructed to send a copy of this resolution to each of the members of the Investment Policy Committee.

The Executive Committee authorizes the purchase at the expense of the Association of 100 reprints of the Secretary-Treasurer's report.

The Executive Committee authorizes the travel expenses of the newly elected Secretary-Treasurer and his secretary to Madison, Wisconsin to assume charge of the books and records of the office of Secretary-Treasurer.

The Secretary-Treasurer is authorized to enter into arrangements for the establishment of a local chapter of the American Farm Economic Association at Clemson Agricultural College.

The Secretary-Treasurer is authorized to continue the Association's membership in the American Institute of Cooperation and to pay the annual dues of \$25.00 per year.

The Executive Committee authorized the signing of a new printing contract at increased rates with the George Banta Publishing Company.

The following proposals are submitted by the Executive Committee to the membership with the recommendation that they be adopted:

The Executive Committee recommends that starting with the year 1948, the JOURNAL OF FARM ECONOMICS contain five issues; to consist of a Preceding's issue of not over 400 pages, and four regular issues not to exceed 800 pages for the four issues, making a total of not to exceed 1200 pages for the five issues.

Unanimously approved.

The Executive Committee recommends that the Association enter into a joint membership arrangement with the Western Farm Economic Association on the following basis:

1. Membership in both associations to be available for \$6.00 a year. Of this \$1.50 is to go to the Western Farm Economic Association, and \$4.50 to go to the American Farm Economic Association.

2. Separate memberships to be available, as before, on the basis of \$2.00 for the Western Farm Economic Association, and \$5.00 for the American Farm Economic Association. However, both associations will encourage joint membership.

3. Proceedings of the Western Farm Economic Association to be published in full and sent to all joint members, and to the members of the Western Farm Economic Association.

4. Western Farm Economic Association to have full responsibility for this special proceeding's issue, to pay the cost of it, and to receive revenues from its sale to nonmembers.

5. Members of the American Farm Economic Association who do not take joint membership shall continue to receive the JOURNAL, but not the special Western Farm Economic Association proceeding's issue.

6. The President of the Western Farm Economic Association to be a member of the Executive Committee of the American Farm Economic Association.

It is further recommended that the constitution of the American Farm Economic Association be revised in a manner which will provide for these arrangements.

Approved unanimously.

Revision of the Constitution

The Executive Committee recommends that the sentence in italics be added to Article III of the constitution. Article III would then read:

ARTICLE III

Membership—The membership shall consist of persons interested in Farm Management and Farm Economics.

Associations of ten or more members in a state or region may be recognized by the Executive Committee as local chapters of the American Farm Economic Association. Such locals may admit as members only person who are members of the American Farm Economic Association but they may admit associate members on such conditions as they desire.

The Executive Committee may enter into arrangements for joint memberships with other regional and national associations interested primarily in promoting the field of agricultural economics.

Amendment to Article III approved.

The Executive Committee recommends that the phrase and sentence in italics be added to Article IV. Article IV would then read:

ARTICLE IV

Organization—The officers shall be a President, two Vice-Presidents, and a Secretary-Treasurer, who shall be elected for one year, and who shall serve until their successors shall qualify. In case of incapacity of the President to act, the Vice-President receiving the highest number of votes shall act as President.

The Executive Committee shall consist of the active officers, the latest three past Presidents, and may include the President of any national or regional association with which the American Farm Economic Association has entered into joint membership arrangements. It shall appoint annually the Editor of the JOURNAL OF FARM ECONOMICS. It may adopt rules and regulations for the conduct of its business not inconsistent with the constitu-

tion of the Association, or with rules adopted at the annual meeting. It shall act as a committee on time and place of meetings, and perform such other duties as the Association shall delegate to it.

There shall be a standing committee on investment policy with respect to Association funds. The Secretary-Treasurer shall be a member of this committee. *He shall have authority to acquire, sell and transfer property for the Association.* The actions of this committee shall be subject at all times to review by the Executive Committee.

The President, Vice-Presidents, and such other members as the President may appoint shall constitute a committee on the preparation of a program for the annual meeting. The President shall act as chairman of this committee.

Special committees may be appointed in accordance with the needs of the Association. Special committees and the investment committee shall be appointed by the President with the approval of the Executive Committee. Amendments to Article IV approved.

Report of Election Tellers

We the undersigned members of the committee of election tellers do hereby certify that we have counted the ballots turned over to us by the President, and that:

- (1) There were a total of 512 ballots cast and counted, and that
- (2) The following were elected officers for the year 1947:

President—Asher Hobson

First Vice-President—Stanley W. Warren

Second Vice-President—Marion C. Clawson

Secretary-Treasurer—L. J. Norton

(Signed) MARTIN ABRAHAMSON, North Carolina

(Signed) PAUL J. FINDLEN, Washington. D.C.

(Signed) GEORGE W. WESTCOTT, *Chairman*, Massachusetts

Report of Committee on National Science Foundation

In response to a resolution passed at the 1945 annual meeting, this committee was appointed to keep the membership informed of developments concerning the proposed foundation and to protect the interests of the Association in respect to this matter. The committee was constituted as follows: George H. Aull, Asher Hobson, O. B. Jesness, H. R. Wellman, and L. J. Norton, Chairman. Considerable correspondence took place among members of the Committee, a news note reporting on the legislative status of the bills relating to this foundation was prepared and printed in the JOURNAL, and a round table was arranged for the annual meeting. The Committee wishes to thank the President, F. V. Waugh and Dr. Paul Web-bink of the Social Science Research Council for advice and counsel. The Committee has no extended report to make. Its members agree that, if the federal government launches a broad program of support of basic research, adequate provision should be made for work in the social sciences, and that, while the Committee does not need to be continued, the Association might well designate some individual to follow up developments in connection with this matter.

So far as actual developments are concerned the bill creating the foundation was not enacted by Congress and, if the matter is revived in the next Congress, new bills will have to be introduced.

L. J. NORTON, *Chairman*

Other Business

RESOLUTION SUBMITTED BY SHERMAN E. JOHNSON

Asher Hobson, who has served as Secretary-Treasurer of the American Farm Economic Association for 15 years, is now retiring from that position. During this period he has devoted a generous portion of his time and talents to the performance of the many administrative and professional duties that could be performed only by a person intimately familiar with the affairs of the Association, and sincerely interested in its progress.

WHEREAS, individually and as an organization we have benefited from this unselfish service to the Association,

THEREFORE, be it resolved that we recognize his outstanding contribution to the financial and professional progress of the Association by expressing our heartfelt thanks for the service he has rendered and by making this resolution a part of the minutes of this meeting.

Resolution unanimously adopted.

MINUTES OF MEETING OF EXECUTIVE COMMITTEE

DECEMBER 28, 1946

Mr. Warren C. Waite was appointed editor of the JOURNAL OF FARM ECONOMICS for 1947.

In order to furnish transfer officers of corporations with the necessary evidence that the Secretary-Treasurer is authorized to transfer securities in the name of the Association, the following resolution was authorized.

"RESOLVED, that the Secretary-Treasurer who is also Chairman of the Investment Policy Committee, be and is hereby authorized and empowered, for and in the name and on behalf of this Association to take any and all such steps, and to do any and all such things, as may be necessary, required, and appropriate for, or in connection with the purchase, acquisition, acceptance, handling, pledging, sale, or other disposition of stocks, bonds, and other securities belonging to the Association or pertaining to its business, including the execution and delivery for and in the name and on behalf of the Association, of any and all endorsements, transfer and assignments of certificates of stock, bonds, or other securities standing in the name of this Association, either for the purpose of sale or transfer, and all such other steps and action as may be necessary or proper in connection herewith."

The Executive Committee authorized the President:

(1) To appoint a committee to obtain contributions to be used for awards in recognizing outstanding research work in the fields of agricultural economics.

(2) To appoint a qualified person as Library Custodian with duties as outlined in the Secretary-Treasurer's annual report presented on December 28, 1946.

Discussion of annual meeting program ensued.

L. J. NORTON, *SECRETARY*

ANDREW BOSS

1867-1947

One of the most outstanding careers in public service to agriculture in the history of the nation was brought to a close with the death of Andrew Boss on January 13th 1947. Born and reared on a Minnesota farm he entered the Minnesota School of Agriculture in 1889 and graduated with its second class in 1891. His ability and industry in his student days won for him the position of University Farm foreman immediately on graduation. He was appointed assistant agriculturalist in 1894, promoted to associate professor in 1902 and in 1905 was elevated to a full professorship and made chief of the division of Animal Husbandry. In 1910 he was made chief of the division of Agronomy and Farm Management (later Agronomy, Farm Management and Plant Genetics). In 1918 he was appointed Vice-Director of the Agricultural Experiment Station. When the farm management work was transferred to the newly created division of Farm Management and Agricultural Economics in 1928 he was relieved of routine administrative work in the division in order to devote more time to the work of the experiment station. He still continued to teach in the new division until his official retirement in 1936, thus rounding out more than 40 years of teaching in the School and College of Agriculture and the Graduate School of the University of Minnesota. He was called back to active duty for most of 1944 to serve as Associate Director of the Experiment Station while a member of the staff was on overseas duty with the Army.

College records do not list an extended series of letters after the name "Andrew Boss." It is true he did not have the formal credits required for the conventional earned degrees but it was no secret that he could without difficulty have passed with distinction the final examinations for the highest degree in several fields. Lack of formal schooling did not mean lack of education in his case. His honorary degrees, a Doctor of Science from Kansas State College in 1927 and a Doctor of Science from the University of Minnesota in 1945, recognized rather than added to his stature as a teacher, research worker, administrator, public servant and citizen.

A charter member of the American Farm Economic Association and a guiding spirit in its formative days, he served as president in 1915. His contributions to this JOURNAL cover the span of years

from 1911 when his first article appeared in the proceedings to 1945 when, on invitation of the editor, he presented a most stimulating historical review entitled "Forty Years of Farm Cost Accounting Records."

The contributions of Andrew Boss to agricultural science were so diverse and varied as to be astounding in an age of narrow specialization. He achieved mastery in several distinct fields. He took an active part in initiating crop breeding research. He was a pioneer in organized research in farm management and in developing courses in this field. He developed the first courses in the country in both meats and farm machinery. The American Society of Animal Production recognized his contribution by having his portrait hung in the Saddle and Sirloin Club in 1929. He was active in organizations to improve agriculture and a member of many scientific professional and honorary societies. His list of publications is long and impressive. His books include an early text in farm management and four texts (with colleagues) for agricultural high school use. Retirement did not mean inactivity as shown by the fact that a comprehensive text "Farm Management: Principles and Practice," of which he was senior author, was in press at the time of his death.

Perhaps the most striking characteristic of Andrew Boss was his ability to find the key problems of agriculture, to organize research to solve them, and then to bring the solution into practical use. He was ever alert for new problems. He knew, as few others did, how most effectively to organize the methods of scientific research to solve these problems. What is even more significant was his rare talent in visualizing how the solution fitted into the farmers' program. He had a faculty for translating the technical terminology of science into the vernacular and experience of the man on the farm in a way which led to acceptance as sound practice ideas which otherwise might have been dismissed as "book farming." No man was so constantly in demand as a speaker at farmers' meetings and certainly none commanded a wider farmer acquaintance or more universal respect among them.

His long and fruitful life included service in a wide range of activities with governmental and private agencies. He helped reorganize the farm management work of the Bureau of Agricultural Economics. He was state director of the Agricultural Adjustment Administration prior to retirement. He was chairman of the Board of Directors of the Farm Credit Administration, Seventh District, at the time of his death. His local church and its state organization

honored him with elections to the highest positions within their power. He was president of the local bank in his community and was prominent in many civic and community activities. He saw clearly that society needs good men as well as scientific knowledge and did his full share in developing and inspiring leaders.

The high esteem in which the community held Andrew Boss is evidenced by the fact that the three daily newspapers of Minneapolis had editorials regarding him when the news of his death was reported. One of these commented "the truly grand old man of Minnesota agriculture is gone." It also noted that "what will be missed most is the stimulation which he always spread. Even at 79, he was young-minded and inspiring." Another editorial said "the death of Dr. Boss has taken from Minnesota a man of vision for the future and a background which cannot be replaced readily." The third appropriately concluded that "his death ends a fruitful career of farm leadership and service which could be matched by few of his contemporaries."

Those of us who worked with him (no one ever worked under him for he was ever a leader, not a driver) will miss his wise and friendly counsel. Our relations with him were primarily personal, and only secondarily official. Always unselfish and self-effacing his efforts were unceasingly devoted to the development and advancement of his associates. Gifted with a retentive mind few of the thousands of students and colleagues with whom he worked were ever forgotten by him and needless to say, none ever forgot him. His memory will long be a source of encouragement and inspiration for the host of fellow workers and former students who were privileged to share his acquaintance.

These lines about Abraham Lincoln by Edwin Markham were used as a part of the funeral sermon because they apply so well to Andrew Boss:

"The color of the ground was in him: the red earth;
The smack and tang of elemental things;
The rectitude and patience of the cliff,
The goodwill of the rain that loves all leaves;
The friendly welcome of the wayside will;
The courage of the bird that dares the sea;
The gladness of the wind that shakes the corn;
The pity of the snow that hides all scars.

He held his place—

Held the long purpose like a growing tree—
Held on through blame and faltered not at praise."

G.A.P.
O.B.J.

Joint memberships in the American Farm Economic Association and the Western Farm Economic Association are available at \$6.00 per year, under the arrangements authorized at the last annual meeting of the Association. Separate memberships are available as before on the basis of \$2.00 for the Western Farm Economic Association and \$5.00 for the American Farm Economic Association. Joint members will not only receive the JOURNAL OF FARM ECONOMICS but also the Proceedings of the Western Farm Economics Association. Joint memberships may be arranged through the Secretary of either Association.

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PROGRAMMATIC RESEARCH AND AGRICULTURAL POLICY

CHARLES M. HARDIN*
University of Chicago

AMERICAN agriculture, including related research and administration, has always been, and is today, in flux. Assuming the continuing importance of public policy for agriculture, I am here arguing the need for considered research policy in order to achieve systematic examination of the issues raised thereby. The concept is called "programmatic research." Its nature and necessity are analyzed against the background of institutional development of agricultural government in this country. The major thesis is that programmatic research should be thoroughly grounded and vigorously prosecuted on both sides of the federal system. A companion thesis, asserted rather than examined in these pages, is that such research should marshal the best abilities of agricultural professionals in all disciplines—natural as well as social sciences. Another implicit thesis is that *scientists should act like scientists*, continually and freely searching for the consequences of alternative governmental policies for agriculture, while recognizing that the decision upon the actual content of governmental policy must be

* Full responsibility for this paper is mine. Without implying any acceptance on their part of ideas or analyses contained herein, I am very grateful to the following men for their willingness to read and comment upon earlier drafts: in the United States Department of Agriculture, O. V. Wells and Charles E. Kellogg; in the Department of the Interior, Marion Clawson; among Experiment Station Directors, R. E. Buchanan and Noble Clark; at the Stanford Food Research Institute, J. S. Davis and Holbrook Working; among agricultural economists, Professors T. W. Schultz (University of Chicago) and J. R. Greenman (University of Florida); among political scientists, Professors John M. Gaus (University of Wisconsin), H. J. Morgenthau and Avery Leiserson (University of Chicago), and William Anderson (University of Minnesota.)

left up to the politicians and the parties as only these are responsible to the electorate.

Sharp attacks upon the economic investigatory role of the Bureau of Agricultural Economics culminated in a marked budget reduction in 1946. Since then there has been considerable change in the directing personnel and in the general organization of BAE's work. The BAE may continue to operate vigorously as an agency for "programmatic research." If so, it will be a tribute to excellent personal relationships between BAE leaders and others. But are good personal relationships all we can hope for? Must we rest upon the assumption that governmental research agencies will continue to attract and keep the services of able men whose work bears closely upon the operations of governmental policies for agriculture? This paper hopes to contribute to a clarification of principles that show the need for and the role of programmatic research. It also offers some suggestions as to how such research might be institutionalized as a recognized function of government.

But the inquiry cannot be focused upon Washington. In this country governmental powers are divided along federal lines. In analyzing the research function, we shall have to examine agencies upon both sides of the federal system. At the outset, the current tendencies toward decentralization must be recognized. Regional offices of central agencies are favorite targets. Those of the old Agricultural Adjustment Administration (now the Field Service Branch of the Production and Marketing Administration), the Farmers Home Administration (formerly Farm Security Administration), and the BAE are gone or going. Farmers Home Administration and the Soil Conservation Service are in continuous struggles for existence; the Rural Electrification Administration, only less so. Contrarily, the Hope-Flannagan Act adds considerably to the financing of state institutions, chiefly Land-Grant Colleges and Universities.

Since in an interpretative essay my own beliefs and valuations become particularly important, I shall attempt to state what these are—some now and some later. *First*, I subscribe to the following statement of the Executive Committee and the Agricultural Policy Committee of the Association of Land-Grant Colleges and Universities (LGCA):

"The agricultural colleges and experiment stations in the several States are convinced that many, if not most, of the major difficulties which will

confront American farmers in the years ahead concern economic issues such as: (a) Prices for products sold by farmers and articles purchased by them; (b) readjustment of wartime agricultural production programs to meet changed conditions; (c) provision of adequate employment opportunities for rural people; (d) ways of improving the level of living of farm operators and their families; (e) maintaining urban employment and income, and an abundant world trade.

"Likewise, the land-grant institutions believe that progress in the solution of these economic problems is largely dependent upon finding the facts on which sound economic policies must be based. This in turn means economic research and economic analysis on a national basis."¹

Second, neither in the United States Department of Agriculture (USDA) nor in the Land-Grant Colleges is there an effective alternative to giving the BAE or some other USDA bureau definite responsibility for programmatic research. In partial support, let me again cite the LGCA statement:

"Surely the Congress will not make such a drastic cut in funds for the support of economic research in the face of certain fact that no other agency will be able to make up that curtailment. The individual land-grant institutions already are carrying greatly increased burdens due to enormously expanded veteran enrollments, and the necessity of helping the farmers of their respective States to make necessary adjustments to changed local conditions created by war and the aftermath of war. They have no intention of reducing their programs of agricultural economics research, but they are not in position to absorb with State-funds anything like an additional \$500,000 program of agricultural economics research; neither is any State institution in a position to carry on the Nation-wide economic research now conducted by the Bureau of Agricultural Economics."²

Third, support must be widely marshalled. The USDA, the colleges, the Association of the Land Grant Colleges and Universities, and others should press for programmatic research in agriculture. Moreover (as is argued later), college support of BAE can help ground agricultural policy on a strong research program, fully cooperative with the colleges.³

¹ *Hearings*, Senate Committee on Appropriations, Sub-Committee on Agriculture, fiscal, 1947, pp. 529-531. Henceforth referred to as the LGCA statement.

² Since this testimony, the passage of The Hope-Flannagan Act promises to ease the financial situation considerably. Yet this is thought not to change the general argument in this paper for institutionalizing a part of the programmatic research function in Washington.

³ As will be suggested below from time to time, this method of support is really palliative in nature; in the longer run we may hope for a developing awareness of the connection between our present difficulties in agricultural policy formulation and the shortcomings of some of our major political institutions.

Let us examine these points.

The Nature of Programmatic Research

Programmatic research assumes the continuing importance of governmental policies directed toward the amelioration of economic maladjustments in agriculture. Programmatic research asserts that better policies can emerge if based upon systematic inquiry and analysis. Yet programmatic research implies something more. For policies are directed towards ends—immediate and specific ends such as stabilizing particular prices, meeting special credit needs, and the like, but also more ultimate ends such as providing security, maintaining order, enlarging opportunity, enhancing production of goods and services, improving distribution, and retaining and strengthening the democratic process itself. Now in specific and immediate agricultural policy, there is very little hope that conservationists will be satisfied with the amount of conservation provided, or that in working toward future adjustments in production the principle of comparative advantage will receive full recognition, or that agricultural policy will be planned entirely in accordance with the criteria of nutritionists. On earth, at least, no sovereign reconciliation in which all ends are fully realized appears possible. Rather there must be compromise and reconciliation among various goals or ends. The process of compromise and the public acceptance of the result represent in themselves democratic ends. The same thing is true of the more ultimate purposes. Are we to strive for order without regard for justice; for security without regard for individual initiative? But here, even more than in the immediate goals, conflicting valuations are involved; and this is what makes programmatic research as difficult as it is necessary. Programmatic research cannot permit itself to be deterred because its findings challenge accepted valuations.

Nor does even this analysis probe all the difficulties of those who would dedicate themselves to programmatic research. For they must continually seek to find a harmony of interests and ends in which they can never permit themselves completely to believe. If they do not seek the harmony or, at least, the better reconciliation, then they must deny that there is a general welfare—and what then is left but to become the technicians for pressure groups?⁴ But

⁴ For an elaboration of the latter viewpoint in an earlier period, see John R. Commons, *Labor and Administration* (1913), Ch. V, *Economists and Class Partisanship*.

if they believe too strongly in the harmony, they risk becoming the advocates of panacea. How many useful ideas under certain times and conditions have been elevated to sacrosanct and sovereign remedies for all social ills! One thinks of the sub-treasury scheme, free coinage of silver, the protective tariff, McNary-Haugenism, Sapiro-ism, the single-tax, control of the "money power," and governmental fiscal policy. In politics, one could nominate direct democracy, proportional representation, and the "rule of law."⁵ These considerations reveal the depths of our difficulties. Let us now attempt a brief statement of the attitude of a programmatic research worker.

He will view the continuation of a positive governmental policy in light of the multiplicity of ends which are sought through government. He will try to understand the relationships between valuations and ends as well as the conflicts among ends and among valuations. He will be on guard against panaceas. He will understand that the "general welfare" is easily invoked but difficult to define; yet as the end of governmental action he will insist upon postulating a general welfare the content of which is subject to continuous refinement. Realizing the dangers of an uncritical reliance upon reason, he will still assert that the power to think rationally is the chief characteristic of man. Finally in the light of such considerations, the programmatic research worker will be prepared to play his full share in the continuous search for better resolutions of the conflicting purposes of society through policies of government.

The Imperative of Programmatic Research

Is it possible to avoid controversy over the direction of agricultural policy by means of a general retreat from asking such leading questions as are posed, for example, in BAE's series, "What Peace Can Mean to the American Farmer"; by the series of Wartime Farm and Food Policy pamphlets, published at Iowa State College; or by the Report on Postwar Agricultural Policy of the Association of Land-Grant Colleges and Universities? I think not. The kind of agricultural policy we now have is *substantive*. By this I mean that prices may be fixed or supported, that quotas may be assigned, that government may step in directly to influence size of farms, types of farming, farming methods, and tenurial arrangements. Govern-

⁵ On this whole discussion, see an extremely important recent book, Hans J. Morgenthau, *Scientific Man Versus Power Politics* (1946).

ment programs have already profoundly affected parts of the marketing system and much more may be expected in this field. The tendency seems to be for such substantive policy to become discrete for each important political commodity. The result may be politically introduced rigidity into an agricultural economy which otherwise would probably be characterized as much in the future as it has been historically by marked shifts in geographic locations of crops and enterprises and by great flexibility in emerging types of enterprise-combinations. Our effort to ameliorate through governmental action the human suffering occasioned in the past by such "flexibility" is laudable; but the actual policies and programs of amelioration also carry their own ill-effects, some of which I have attempted to analyze elsewhere.⁶ Nor is this all. It may be difficult to balance the objectives of agricultural programs of the commodity-control type with other objectives such as conservation and land-tenure policy. Beyond this, major issues loom in resolving agricultural policy with fiscal policy, foreign policy, and population policy.

The operating commodity divisions may avoid much of the grief involved in the conflicting ends of substantive policies; it is difficult to see how agencies of general responsibility, such as BAE or the Land-Grant College Experiment Stations can do so. To take some examples.

(1) The parity index. Since parity is a ratio of prices received to prices paid designed to reflect a similar ratio which obtained in 1910-1914, questions arise chiefly as to the prices paid by farmers. What commodities or services shall be included, at what prices, and with what weights? Some believe the USDA has been scientifically objective in revising the index; others believe it has bowed to pressure; others find the revision policy fairly acceptable in the light of the political realities; and still others consider the present parity legislation so absurdly pseudo-scientific that trying to apply the scientific method to the parity index is like an effort statistically to determine how many angels can stand on a pin point. My only concern is to state that the parity index poses political questions which no agency charged with its manufacture and repair can avoid. The difficulties of the USDA rest only less lightly on the Experiment Stations whose economic staffs have a great responsibility for criti-

⁶ Charles M. Hardin, "The Tobacco Program: Exception or Portent?", *this JOURNAL*, Nov., 1946.

cising agricultural price policies, of which the parity index is one aspect.

(2) Irrigation economics. Suppose a research organization is asked to produce some figures purporting to show how much money farmers can pay for irrigation. If the area concerned is borderline and the determinations are cognate to a decision as to whether legislative standards permit the development of an irrigation project, clearly the "scientifically objective determination" may become a hot potato. This may be much more true if an election approaches and the Congressional district is a "close" one.

(3) Farm incomes, from farming and from non-farm sources (such as off-farm work). Evidence has been introduced elsewhere to indicate that vigorous statistical research in this field may call forth charges of apostasy from the creed: "Our farmers, may they ever be right, but right or wrong—our farmers."⁷

(4) Distribution of income among farmers, especially if there were an effort to correlate such distribution with AAA payments (including parity payments), Commodity Credit Corporation loans, and the incidence of benefits from other farm programs.

(5) Studies to determine the physical labor in-put, for example, in the production of cotton.

(6) Actual recording of production and production trends—in short, crop reporting. If production goals are set, either to increase or to decrease production, a crop report which shows a figure divergent from the goals set may become a political item.

Many agricultural workers could extend the illustrations, but these are probably enough. They illustrate the weakness of "statistical innocence" as a defense. In the article just cited I attempted to show how "factual" inquiries into the distribution and derivation of farmers' incomes may involve a research agency in controversies over valuations bound up with "agricultural fundamentalism." The crucial point is that valuations as to what things ought to be are inextricably bound up with beliefs about what things are. Therefore, if one persists however chastely in "mere enumeration," he may find his project "exploding in his face" because his results challenge the facts upon which some emotion-laden valuation appears to rest.

⁷ Charles M. Hardin, "The Bureau of Agricultural Economics under Fire: A Study in Valuation Conflicts," this JOURNAL, August, 1946. A number of the points made here are further elaborated in that article.

My contention is, then, that social scientists, working in agriculture, are necessarily involved in policy questions—and let me say that their natural science brethren are equally caught in the same trap.⁸ Here let us anticipate the question: What of it? Is it not preferable to be drafted rather than to volunteer; to wait for the push rather than leap into the breach? I think that there is much to be said for this point of view. Of late the centralization in agricultural government offers many examples of serene confidence in the efficacy of human reason—especially such reason as is ensconced in Washington. With this has often been linked a willingness to act, a desire to push programs, a propensity toward ever larger organizations—toward multiplication of functions and pyramiding appropriations or borrowing authority. The assurance with which administrators have accepted sweeping responsibility is a little breath-taking.

Against this reach of power there is a natural revulsion. There is skepticism as to human ability to perfect an ill-adjusted society through governmental means. There is suspicion that what is postulated to gain will be lost and what is set to avoid will be incurred.

Such sentiments deprecating man's ability to guide and even to control the powerful engines of government may militate against the acceptance of the "imperative of programmatic research." But so also may operate other factors: The ponderous inertia of large institutions against departing from settled ways; the inexorability for some of limited horizons; those minds which, faced with positive proposals, immediately canvass all the reasons for failure; and those possessors of security for whom the policies demanded by the insecure may seem outrageous or absurd.

If very recent history has demonstrated for many the possibility of excess in vigorous governmental policy, it can be strongly argued that the nature of what appears as excess in the '30's is partly attributable to an earlier inertia, a lethargy, a retreat from the challenge of the times.

All are familiar with the development of the triple-A: the effort to support prices via the Farm Board, the failure to support prices in the absence of production control, then production control and,

⁸ A very large subject that needs searching analysis is the question of relating natural scientists to programmatic research. See Charles E. Kellogg, "Scientists and Social Policy in the Democratic State," *Scientific Monthly*, May-July, 1942. Most striking here, of course, is the interest of nuclear physicists in social policy.

subsequently, penalties for production in excess of quotas. Who will deny that we were plunged almost overnight into sweeping control programs without having laid the basis for their most rational operation through vigorous research in production economics? In 1933 our economic research energies had been focused for 20 years upon the market. The rush of activity which had followed the Purnell Act (1925) soon was pushed into traditional, "orthodox" lines. It is instructive to recall that the Federal Farm Board under Chairman Leggs rapidly came to the realization of the need for the most detailed kind of information on production economics, especially regarding the effect of comparative advantages. H. R. Tolley, then the head of the Gianinni Foundation, scathingly criticized the presumption that this kind of information could be evoked overnight.⁹ But our present intent is merely to state the conclusion: The imperfect preparation in research inevitably contributed to the crudity of our production-control program. Furthermore, the crudities apparently tend to perpetuate themselves.

Research on Agricultural Policy in the U.S.D.A.

If the nature of present agricultural problems and policies requires continuous analysis of the kind with which the BAE was charged in 1938, what alternatives are there to BAE? Let us look first at the USDA, then at the Land-Grant Colleges. Not all the economic research in the Department has been in the BAE. FSA, Farm Credit Administration, SCS, AAA, and commodity branches in the Production and Marketing Administration have all carried on economic research and analyses on the basis of which program determinations have been made. Sometimes, not always, such research has been cooperative with BAE. As to whether other agencies in the Department can somehow manage to create methods of integrating research and analyses that will effectively replace the general work of the BAE, three points need to be made.

First, the Bureau of Agricultural Economics emerged into its 1938-1946 role only as the cumulation of a process that had long been going on in the agricultural sector of our central government. This process could be traced at least to the origin of BAE in 1922, and, indeed, to some of its precedent agencies which became in that

⁹ Tolley was convinced, however, of the need for such information. See 44 *Proceedings of the Association of Land-Grant Colleges and Universities, 1930*, pp. 108 ff.

year its constituent parts; later, creation of the Federal Farm Board involved recruitment of an economic policy staff; later still the Agricultural Adjustment Administration was the setting for a Land Policy Committee; then the Office of Land Use Coordination was created; and finally BAE was cast in its role of policy analysis in 1938. The persistence of the creation of agencies for economic staff-work is certainly *prima facie* proof of the need for such agency.

Second, the operating bureaus and agencies, which parenthetically, will carry on considerable economic research and analysis regardless of such general organizations as BAE, can hardly be expected to carry the burden of jointly generalizing their rather disparate points of view and directions by means of "cooperation" without benefit of organized leadership. Yet conservation goals are certainly part of the ends of adjustment policy; at the same time, credit, the size of farms, tenure, and conservation are all closely interrelated. Their integration tends to be either with a commodity such as cotton (and perhaps with related industries; certainly with related producer-organizations), or with a function such as credit, or with a social purpose general in geographical extent but limited in scope—such as conservation. The consequence is that none of the operating bureaus and agencies is able to marshall all the intellectual resources of the USDA with respect to an adjustment problem (say in the Great Plains or in the Piedmont) where several commodities, several functions, and numerous social purposes are involved.

Third, in view of such considerations it is not surprising to find weighty professional testimony from experts in public administration that central organs of programmatic research and policy formulation are highly requisite.¹⁰ Although a degree of self-determination is essential in operating bureaus, these tend to become nearly autonomous, so far as general departmental direction is concerned—a situation that, in large part, at least, is produced by that object of misplaced affections, our peculiar brand of the separation of powers. It becomes highly important, therefore, to strengthen the hand of the Secretary, just as, above the departmental level, it becomes essential to endow the President with effective organs and tools of inter-departmental coordination.

¹⁰ Though many citations could be made, one of particular interest to agriculture will serve, John M. Gaus and Leon A. Wolcott, *Public Administration and the United States Department of Agriculture*, 1940, especially chapters 14, 15, and 17.

One point remains with respect to alternatives to the BAE in the role of over-all policy consideration within the Department—what of the Secretary's office itself? Here space requires that we substitute sentences for chapters. The Secretary's office has a range of responsibilities beyond the one under consideration. From within the Department decisions must be channeled to the Secretary (or his office) on personnel matters, financial control, the interpretation of departmental regulations and of statutes, quasilegal controversies placed by law in the hands of the Secretary, and the like. From outside the Department come communications and visitations—from the President's office, from Congress, from other Departments. Then there are always representatives of agricultural organizations and the gentlemen of the press.

No good reason appears to require that the economic investigation and advisory functions of the BAE be prosecuted in the Secretary's office. To be sure, if the Secretary is to be the responsible political chief of the Department in fact as well as in name, real authority over both the substance of programs and the structure of administration must reside in him. Here the argument touches several other questions in the field of agricultural politics. Political scientists will agree generally that the goal is to invest the Secretary with power commensurate with his responsibility; that the authority to make controlling decisions (always within the framework of delegations to him by Congress and the President, of course) should be his; and that he needs an adequate staff. But the research organization which will conduct continuous inquiry into the consequences of present policies and the shape of alternative possibilities probably ought to be separate from the Secretary, although subject to his general direction. The functions of programmatic research is not fit for a handful of trouble-shooters at the Secretary's elbow. Rather, a staff and facilities and time are required so that the product which emerges will bear some recognizable proportion to the eminence of the problems which research must attack—and so that the programmatic research agency may establish and maintain the necessary prestige in its field.

We conclude that a separate agency is advisable in the USDA for the purposes under review and that BAE has in the past been appropriately conceived for this general function. No effort is made here to weight BAE's performance in this role.

Why Programmatic Research in the Land-Grant Colleges?

But the USDA is not the whole of the agricultural governmental process in the United States. Are there alternatives to the BAE in the states, notably in the Land-Grant Colleges? Nowhere in this paper is the opinion expressed or implied that any organization should monopolize general research and policy formulation. Other agencies of the USDA share responsibilities in these fields as do universities generally, interest groups and foundations.¹¹

May I here state another personal valuation? The Land-Grant Colleges ought to have and maintain a large role in general research bearing upon agricultural policy and in policy formulation. This valuation is related to a number of beliefs about related facts which can only be adumbrated; they concern, fundamentally, human nature—the limited scope of individuals as against the vastness of the problems, and the importance of competition among individuals in generating the best fruits of human initiative. They concern my fears of the consequences likely to proceed from the progressive governmentalizing of agricultural operations. In a country large as this, to draw into Washington all intellectual responsibility for research and planning with respect to agricultural policy seems absurd and dangerous. Absurd because of the infinitude of local differences that need to be reflected in policies appropriately adapted (and many people can offer examples of Washington programs which have come out cut-and-dried to do violence to the necessity for nice local adaptation). Dangerous because of the tendency of central agencies toward orthodoxy: here I am reminded of the late Joseph Storm's explanation of his transfer in 1941 from information officer of the AAA to information officer for the Department of Agriculture (i.e., for Secretary Wickard). "Gentlemen (he said, in effect, to the gathered Department and college workers) we have subscribed to different orthodoxies. There have been the Gospel according to St. Hugh, the Gospel according to St. Beany, and the Gospel according to St. Spike. But from now on, Gentlemen, there is just one Gospel—according to St. Claude."¹²

¹¹ The LGCA statement, *op. cit.*, remarked: "The national farm organizations have a few research economists, but the officers of these organizations have repeatedly emphasized the need for more economic research than the State experiment stations and the United States Department of Agriculture have been able to undertake." With due credit to the work performed by research staffs of farm organizations, it is clear that programmatic research must be institutionalized elsewhere.

¹² References were to Hugh Hammond Bennett, Chief, Soil Conservation Service; C. B. ("Beany") Baldwin, then Administrator, Farm Security Administration; and R. M. ("Spike") Evans, then Administrator, Agricultural Adjustment Administration.

We may expect well-financed action programs in agriculture, backed by virile pressure groups closely intertwined with powerful Congressmen; these programs will be administered by strong agencies. And out of each complex, or "whirlpool of policy" (in Galloway's phrase), there emerges an orthodoxy, an agency line. *And the resultant pressures upon research to emanate in conclusions which support the agency line can be enormous.*

From such beliefs as these about the facts of economic politics my conclusion, or evaluation, arises: that we should by all means maintain vigorous, quite independent centers of research and policy-formulation and criticism in our Land-Grant Colleges. One of the characteristics of constitutional democracy is that the means of generating alternative policies to those at any time obtaining are institutionalized. It is the virtue of the federal system to provide, as in the Land-Grant Colleges, a forum for men to rise and address the central government, echoing Cromwell's phrase: "I beseech you, in the bowels of Christ, think it possible that you may be mistaken."¹³

Handicaps of the Colleges

From this valuation one could turn with great interest to an exhaustive study of the work of the State Experiment Stations of Land-Grant Colleges over the last twenty years to estimate its relevance to policy formulation. That task is as much beyond our present paper as was a similar inquiry into the substance of what BAE has done. Parenthetically, the task of examining 5000 projects and as many researchers would be formidable; nor are there published analyses which are greatly helpful—at least since (roughly) 1930. Before 1930 there was continuous cross-fire of self-criticism among Land-Grant research workers, since then, understandably but sadly, there has been a lack of critical appraisal. Before 1930 the Washington Office of Experiment Stations was capable of resounding critical broadsides against what it conceived as state station shortcomings. Since 1930 Washington strictures have been notably absent.

What we may do, however, is to suggest reasons which indicate that, however important the various state experiment station's *share* in general research and program formulation ought to be, their pre-emption of the entire field is neither anticipated nor desirable.

¹³ Quoted in W. Ivor Jennings, *The British Constitution*, 1942, p. 77.

Historically, although brilliant exceptions can be cited to the contrary, Land-Grant Colleges for a variety of reasons have been handicapped in addressing themselves to national and, frequently, even to regional problems. Primary responsibilities of these colleges are to issues arising and demands made from within their several states. The colleges are state institutions. Moreover, each college is a tough institution, directed by men who understand politics as "the art of the possible." Each college has had its fighting background, its heroic period when the alternatives seemed to the college champions (and rightly in the view of their inheritors today) to have been meanness, mediocrity, or eminence. College prestige and reputation, not lightly won, are never lightly worn.

The effects upon the attitudes and expectations of college men are profound. Many of the men who hammer out their careers in such institutions were born in the same state that educated them and now provides the college field for their initiative. Their highest professional ambitions culminate within the boundaries of the same institutions which they first approached as freshmen. The powerful centripetal consequences are further abetted by the frequent close relationships with farmer organizations which are also organized upon state lines within which they largely work out their purposes. In this fashion do the institutions that flesh out the federal theory act to strengthen each other in the illusion of self-sufficiency and independence.¹⁴

As state institutions, the colleges are expected to serve the public of their own states—but what is the "public"? Many political scientists and philosophers have helped us understand that for practical purposes, there are often many publics. The constituent group, the determining group, the decisive group of each college must be discovered in separate, often intricate, analysis. The state legislature, as a whole, will be important—a matter of general knowledge to which one of Missouri University's great presidents, Richard Henry Jesse, gave classical expression.¹⁵ But behind the legislature are alumni groups and, among other organizations, those of the farmers. Equally classic is the manner in which Dean Davenport of the University of Illinois obtained the first substantial state appropriation for the college experiment station.¹⁶

¹⁴ As indicated below, I am aware that there are also centrifugal tendencies at work arising from the nature of colleges as institutions with universal outlook.

¹⁵ Jonas Viles, *A History of the University of Missouri*, p. 230.

¹⁶ See Allan Nevins, *Illinois*, p. 196; Dean H. W. Mumford in 40 *Proceedings of the Association of Land-Grant Colleges and Universities* (1926), pp. 212-15.

What is the meaning of this proximity of organized farmer-interest to the Experiment Stations? Are there discernible effects upon Station programs? I should be among the last generally to decry the face-to-face relationships of researchers and agricultural college people with the farmers and farm leaders of their states. But our concern is to examine the college's ability to direct programmatic research; such close relations may seriously inhibit the experiment stations in its prosecution.

Permit me to offer three examples. In all of them, the vulnerability of the college to its particular "public" seems of paramount importance. The effect may be one of surface amity bought at the price of accepting conditions as they are. When such acceptance becomes transmuted into conviction, an intellectual proposition which once was challengeable as such becomes a shibboleth. Thus in certain states college people have declared to me that the distribution of farm property and income is too hot to handle. Yet the operation of the AAA was admittedly making the differences even greater. A personal escape from the psychological tensions arising from this situation is for the research worker to embrace the belief that people are divided by nature into two classes: Those who will make out all right barring the "slings and arrows of outrageous fortune" and those who are just no 'count. Or the effect may be openly political. The significant recent example is the Iowa State margarine imbroglio of 1943. Without attempting to fix praise or blame in this deep-rooted situation, one can say that there was pressure of political nature (politics does not have to be partisan) and that, later, there was a great exodus of professional personnel from Ames. In consequence of this exodus one of the social science teams in the Land-Grant College area which was addressing itself consistently to agricultural policy in its general setting was disrupted. Finally there is an entirely different kind of pressure the effect of which may be equally debilitating. State experiment stations are constantly importuned for the answers to very specific questions to practical problems of immediate interest to farmers. Thus the conception and prosecution (especially the latter) of a broad-scale and long-run program is difficult—as the Congressional testimony of the Washington spokesman of the stations, Director Jardine of the federal Office of Experiment Station, year after year bears witness.¹⁷

¹⁷ To this incessant pressure for "practical" research on unrelated problems one must add the tendency toward specialization in Land-Grant as well as other colleges. Experiment stations are normally divided into numerous departments which

In consequence the colleges are hardly in position to furnish the sole leadership for programmatic research in agriculture. Nothing is implied in depreciation of the ability of college men to lead in this field. The list of cooperative, Washington-state projects is impressive. But the point is that leadership must come from both sides; stimulation must come from both sides; criticism likewise. The inability of the colleges to get together in joint research without help from Washington was abundantly testified in the 1920's. After a decade of self-criticism by such men as A. R. Mann, C. E. Ladd, Mumford of Missouri, Webber of California, and Farrel of Kansas—after, too, a decade of McNary-Haugenism and kindred agitation, the Experiment Stations were circularized in the 1930 Survey¹⁸ as to the relative importance of various items in their station programs. Blandly, the Survey recorded that most institutions placed joint research with other stations and the USDA on common general problems *at the bottom of the list!*

To some extent, the states lost the agricultural leadership to the New Deal by default.

The New Deal and the Process of Centralization

The depression brought to fruition the ideal of McNary-Haugenism, national agricultural programs of price supports. The Agricultural Adjustment Administration was perforce a large Washington agency from its inception. The Land-Grant Colleges were very much partners of the initial effort. But these colleges had kept their Washington counterparts, the Federal Office of Experiment Stations and the Extension Service, safely anemic. Now the colleges were faced with a large, rapidly-growing heavily-financed Washington line agency, the AAA, which soon (1936) divorced itself from the Land-Grant Colleges and operated through its own network of committees directly with cooperating farmers.¹⁹ Chester C. Davis

apparently are not well organized administratively to produce joint research programs. Now it may be argued that here the cure is entirely intra-state, but I believe that well-organized general research at Washington would help the states break down their departmental fences—just as a similar reciprocal effect should help those in Washington to make the interbureau coordinating committee a real coordinating device instead of a meeting of “ambassadors” each determined to get his agency’s point of view fully represented in a kind of treaty.

¹⁸ *Survey of Land-Grant Colleges and Universities*, Office of Education, U.S.D.I., Bull. No. 9, 1930, Vol. II, pp. 666–67.

¹⁹ Developments in the South were somewhat different; there if the divorce was decreed, the parties continued to live together,

retired from leadership of the AAA at about the time that this move became incipient. He later declared that some members of a Washington group, in disregard of the position of the Land-Grant Colleges, were building a powerful centralized agency which they might seek to use for political purposes.²⁰ H. R. Tolley became AAA chief in 1936; he was succeeded by R. M. "Spike" Evans in 1938. In 1943 friction had increased to warfare, the AAA versus the Farm Bureau and the Colleges throughout much of the Corn Belt. Then War Food Administration was created and Chester Davis returned as its head. He discharged Harry Schooler and otherwise acted to break up what he considered to be a politically-minded group in the AAA leadership in Washington. Then he called a meeting of state college leaders; one of whom told me soon afterward that this was the first time in five years that state college officials had been called for formal consultation on the farm program.

The Quandary of the Land-Grant Colleges

If the Land-Grant Colleges were eased out of policy considerations at one time, they surely have at least a foot in the door today. But do they want it there? Early in the 1930's there was what appears in retrospect a movement of some promise. A conference on land-use was held at the University of Chicago immediately after the annual meeting of the Land-Grant College Association. Out of the conference came a joint federal-state committee on land-use policy. But with the New Deal and the creation of the National Resources Board, this joint committee was discontinued and the Land-Grant Colleges created their own committee which fell into disuse except as a limited forum for carping at federal encroachment. So passed a joint committee which it is *barely possible* (using these words advisedly) might have grown into an agency of considerable benefit to these United States.

Why did the colleges let the joint committee die?²¹ Immediate issues were pressing. The colleges separately were beset by depression-engendered attacks of economy-minded state legislatures; collectively, by economy drives developed in the Hoover administration against federal grants-in-aid and vigorously carried on by

²⁰ Interview, September, 1943. Others have ascribed Davis's move to different reasons, at least in part. See John D. Black, this JOURNAL, Aug., 1946.

²¹ Assuming that at this late date they could have insisted on the retention of the joint approach,

F. D. Roosevelt's first budget-director, Mr. Lewis W. Douglas. The colleges and the LGCA hence retreated into their familiar and successful role of expert political activity on behalf of narrow and immediate interests. No time now, when time was most needed, for general considerations of agricultural policy.²²

But there was and is another reason for failure of full college participation in policy formulation: the colleges are diffident. College officials deprecate action programs in part because of their strong belief in the efficacy of research, education, and extension as representing the true means for solving social maladjustments. In addition, college men are aware that any positive governmental program is almost inevitably identified with the political party in power. Particularly in the midwest and other sections where party loyalty has been traditionally Republican (if sometimes of a radical variety!), college officials are inclined toward a profound skepticism with regard to "new deal" programs for agriculture. Hence ideology and interest have coincided, to a degree, to counsel policies of watchful waiting toward new-fangled programs. But, to a degree, ideology and interest have also counseled just the opposite; ideologically for some aspects, at least, of the farm programs were intellectual; and were not the colleges to have or share the leadership in these intellectual aspects (i.e., the research and education)? And as for interest—no one really presumes that the farm programs came elsewhere than from the demands of those same farmers who are also constituents of the colleges.

Here was a real quandary. Colleges have earnestly sought the answer to what their role should be with respect to federal action programs. One significant analysis was made by Iowa State College in 1939.²³ The issue was recognized as a "matter of great delicacy." The college could not be pushed into administering action programs; on the other hand, it should be at least full partner in research and education. The principle, like so many in politics, is easy to state but hard to apply; for research and formulation of results therefrom are intimately related to action programs and

²² One must realize the strong historical predilection of the college leaders to refrain from advising on agricultural policy. This predilection has been often evidenced; and only recently, with the creation of the Agricultural Policy Committee of the LGCA, as well as the re-orientation of its Executive Committee, is there indication that the colleges jointly are willing to move toward a more positive role.

²³ "Federal State relations in Agriculture," Parts I and II, Bulletins of Iowa State College, Vol. 38, Numbers 2 and 28 (1938 and 1939).

their administration; hence to "politics." The Iowa State group, declaring that the colleges must abjure actual fixing of quotas or prices, urged that they must accept, indeed, insist upon, full participation in "general administrative planning." However, "It is the area between that is difficult of delineation." Good as the Iowa analysis is, the formula which it offers is admittedly very broad. Indeed this formula would seem to be acceptable to all but the most unreconstructed states righters, on the one hand, and sufficient to all but a very limited few who are willing for the colleges to take over direct administration.

Consequently, the question emerges as to whether we can stop with our present institutions as given and search for diplomatic formulas or whether we need actually to create new institutions which will smooth the road to fuller federal-state collaboration in agricultural program formulation. It is my profound conviction that we need a better institutional arrangement than is presently ours.

But the thesis of this paper is somewhat narrower: *Whereas general agricultural research and policy formation is necessary, I hold that it cannot be as successfully prosecuted either by the central government or the states alone as by both of them together.*²⁴

What Can Be Done Immediately

The first thing is to debate the issues.²⁵ Let me restate again my definition in terms of the attitude of the programmatic research worker.

He will view the continuation of positive governmental policy in light of the multiplicity of ends which are sought through government. He will try to understand the relationships between valuations and ends as well as conflicts among ends and among valuations. He will be on guard against panaceas. He will understand that the "general welfare"

²⁴ Emphasis in this paper upon the traditional partners of the federal system, the federal government and the states, should not be permitted to obscure the importance of the question as to whether programmatic research ought also to be organized regionally, and if so, for what purposes and, in what manner of cooperative sharing between Washington and the states concerned. Answers to these controversial questions require a searching analysis which gets down into the significant details of the experience which we have had with regional offices before any generalizations are attempted.

²⁵ We need a better forum for debating agricultural policy. Why cannot agriculture generally have a journal of policy, similar in scope and intent to the *Journal of Forestry*? The debate should be available to administrators, educators, physical, and social scientists—on both sides of the federal-state system. The editorial board might be broadly representative.

is easily invoked but difficult to define; yet as the end of governmental action he will insist upon postulating a general welfare the content of which is subject to continuous refinement. Realizing the dangers of an uncritical reliance upon reason, he will still assert that the power to think rationally is the chief characteristic of man. Finally, in the light of such considerations, the programmatic research worker will be prepared to play his full share in the continuous search for better resolutions of the conflicting purposes of society through policies of government.

This concept many will be unable to swallow. I have arrived at it largely, I think, through being a student of government. The concept is not advanced in the thought that it will be accepted lightly; indeed, it cannot be so accepted. Perhaps the "will not to believe" too strongly in concrete proposals (or "alternatives") is psychologically absurd. The "general welfare" pictures may be too attenuated for some; others will deny that any concept of the general welfare can have meaning. Nevertheless, assuming that the general definition of programmatic research represents something desirable to achieve, how can this be done?

The second thing is to consider short run steps. In the USDA an agency would be established with the responsibility of programmatic research. Whether this agency would be the BAE is not so important as the clarity of both responsibility and authorization for research which does not shirk issues because valuations are involved and which recognizes the degree of reconciliation necessary among the ends of policy. That the final reconciliation among such ends is, and should remain, the task of the politician ought not excuse research workers from the duty of showing all the technical aspects which bear on the reconciliation. It is equally important that the agency of programmatic research develop methods and personnel adequate for integrating all the relevant professional agricultural disciplines—as has been done notably in "Peacetime Adjustments in Farming; Possibilities under Prosperity Conditions."²⁶

By the same token, the Land-Grant Colleges have an equal responsibility for general orientation. Just as there are compelling drives to confine the attention and expectations of college men, as though drawn by some spiritual lodestar within their own states, there are also centrifugal forces. For colleges are really universities

²⁶ Prepared by the Interbureau Committee on Postwar Programs in cooperation with the Land-Grant Colleges, Misc. Publ., USDA, No. 595 (1945).

and the outlook of a university is universal. Think of the scores of Land-Grant College men who have bestridden the limits of their disciplines without regard to geographic boundaries. Moreover, in most states, several programs of the Department come together; the colleges have a practical interest in their resolution.

This general orientation may call for some internal reorganization within the colleges. For example, how many college experiment stations today make use of the annual budget as a device for bringing all department heads together to appraise both short-run and long-run general research goals and the relevance of current projects thereto?

Externally, it means vigorous support of programmatic research in the USDA. The LGCA statement declared:

"Clearly the public welfare requires that agricultural economic research at the Federal level be centered in the Bureau of Agricultural Economics."

Many of the colleges will privately consider the degree of support implicit in this statement as outlandish. Moreover, such support goes much further than the colleges or the LGCA have historically evinced the willingness to go. But the need for programmatic research in the USDA is clarified for the colleges by citing the importance of mutual interaction; if both the Department and the colleges operate vigorously in this field it is quite likely that it will be easier for each of them to do so.

In supporting programmatic research in the USDA, the colleges should maintain the position that this is the limit of their insistence. The colleges and the LGCA need not and must not be placed in the position of necessarily espousing any particular policy which emanates from Washington; indeed, I have repeatedly argued that the colleges must maintain their independence as potential critics of whatever analyses emerge from the very federal agency whose existence and purpose they ought to support!

Finally, there are real possibilities in the short run with institutions as they are for the colleges to support each other and the USDA in programmatic research. In our federal system, we have not only the federal government and the states but also an interstate association which is neither national nor state. For our purposes, this is the Association of Land-Grant Colleges and Universities. While lack of space prevents full elaboration here, numerous conversations with college officials in 1943 convinced me that the

outlook is bright to create a "resistance function" within the LGCA to counteract the pressures within any particular state against programmatic research and, at the same time, to further such research in the USDA.

The Significance of the Longer Run

The turn the argument must take at this point is what convinces me that my positive suggestions are, at best, palliatives. For the real objection of the colleges is based on the widespread conviction that so-called "objective research workers" in federal agencies are few and uninfluential. College leaders suspect that the tenor of research and program formulation in the USDA is too much influenced by political considerations.

I do not wish to minimize the difficulties here. Some of them are inherent in the nature of politics. Yet improvement in mutual regard across the federal-state hiatus ought to be possible. The colleges have an honest complaint against the USDA table-thumpers, the impatient reformers, and the men who arrogantly assume that all real intellectual ability gravitates into Washington. But the USDA has no monopoly on characteristics of invidious prestige. I have seen in the colleges a critical scrutiny of Washington mannerisms which worked to cheapen the dignity of the college itself. And consider that lovely word "cooperation." For how many state station and extension workers does it really mean, "We operate and you coo?"

It is doubtful, however, that improving human relations will suffice to ameliorate the federal-state differences which arise from the creaks and jars of political institutions which are inadequate to our present needs. I believe that Washington professional workers, in agriculture as elsewhere, are led much further into partisanship than they would be if our national political parties were strong enough to perform general functions of policy-making and policy defense.

Two developments bear out and explain this point. They can only be sketched here. The first development involves the weakness of our party system. We profoundly need strong national political parties which can discipline their elected candidates to support party programs. There is nothing "totalitarian" in this, provided that there remains one (and preferably only one) major opposition party. Quite the contrary of totalitarianism, it is difficult

to see how government can be made responsible to the electorate in the absence of strong parties. Our economy becomes more clearly a national one (with international implications); national defense becomes clarified as a pressing and permanent issue for all of us; problems in the field of labor, agriculture, natural resources, transportation, education, health, and population begin to appear as national issues—yet with all this, our political parties remain “loose federations of state machines.” Our parties lack within their own organizations the means of controlling their own Congressmen; hence there has been evidence that means of control have sometimes been sought through the use of governmental agencies, which ought to be strictly neutral politically, to partisan ends. Behind this development has been, I think, not merely patronage hunger, but a groping for a means to make parties truly national. Yet what happens smells of spoils politics to the observer. If this observer happens to be an influential Land Grant College Official and if what he observes happens to be political activity in a Washington agricultural agency, he is likely to impute what he has seen on the part of individuals to Washington workers generally. The attitude of such college official may be further influenced against Washington administrative partisanship by deep convictions of his own that “politics is a rotten business anyway.” In the context of this paper, I interpret the development of administrative partisanship as one which aggravates the relationships between the federal government and the states. In a larger context, I plead that college people should look behind the irritating and distasteful surface manifestations of administrative partisanship to the shortcomings of some of our major political institutions. To repeat, I believe that some Washington professional workers, in agriculture as elsewhere, have been led much further into partisanship than they would have been if our national political parties had been strong enough to perform general functions of policy-making and policy defense.

But other organizations and processes of government than party organization and procedures are involved. This leads to the second development which tends to worsen federal-state relationships. In the absence of party discipline, the Congress tends to break up into little centers of strategic influence. An ideal situation develops for the successful operation of pressure groups. Governmental agencies are created to advance various special interests. These agencies have to return to Congress—really, very often, to their particular

groups of strategic Congressmen—for annual appropriations. As a result, “whirlpools of policy” develop—including interest-group leaders, administrators, and strategic Congressmen. In consequence a splintering occurs—a splintering of agricultural programs, for example, into agencies, branches, divisions, services, or authorities. The Land-Grant College, therefore, finds itself dealing with numerous separate—and somewhat autonomous—agencies, each striving through loyal personnel for a place in the sun.

There develops a continuous *melee* in which participants jockey for advantage, a series of memoranda of understandings which have the defects of treaties generally, and numerous, separate skirmishes on the adjustment, credit, conservation (and other) fronts. It is difficult enough in the face of intra-state issues and pressures for the colleges to maintain their integration and a programmatic approach; it is overwhelmingly so in face of splintered policies, programs, and administrations emanating from Washington.

All this is germane to the orientation of this paper, for both in the shorter run and the years ahead, political institutions are on the agenda of programmatic research. We have by no means fully explored the possibilities of the federal system; but as the exploration proceeds it will draw our inquiry toward other political institutions and principles—chiefly the party structure and the separation of powers. Until the political parties can accept that programmatic responsibility which is the counterpart of the agricultural scientist’s programmatic research, the natural friction between federal professional workers in agriculture and state professional workers will be aggravated.

But these are long-run tasks. Let us hope that this aggravation does not prevent the taking of immediately feasible action in mutual interests. Economically, technologically, politically, culturally—in all these the secular trend is toward centralization. Against the possibility that the trend may overreach itself in creating irresponsible central agencies, the maintenance of a vigorous federal-state system is a valuable safeguard. I hope that this paper conveys my conviction that the maintenance of such system depends upon the vigilant support of strong programmatic research agencies both centrally and in the states.

FARM PRICE GYRATIONS—AN AGGREGATIVE HYPOTHESIS

WILLARD W. COCHRANE*
Bureau of Agricultural Economics

I

WHY does agriculture appear chronically to be in a state of unbalance? Why in the field of agriculture do we seem to oscillate between two extremes—surplus and shortage?¹ The answer would seem to be tied up with the unresponsiveness of agricultural output to price changes. For, although total agricultural output has increased steadily over the past 50 years, the year to year fluctuations have been small. It is a rare year indeed when the index of agricultural production fluctuates by more than 10 points, but the year is even more difficult to find when the index of industrial production does not fluctuate by more than 10 points, and more often by 30 to 40 points.²

Once we perceive the *short run tendency* in agriculture for aggregate output to remain fixed, we are in a position to give some answers as to why a modest shift in aggregate demand creates either a condition of surplus or shortage, depending on the nature of the shift—and to draw the important corollary that a small increase in total demand will correct a surplus condition and a small decrease in demand will correct a shortage condition. This is not to argue that all aspects of the surplus-shortage problem in agriculture can be explained by the unresponsiveness of aggregate output. It is simply to say that when we relate output in the aggregate to overall demand we come to grips with a problem that is not clearly evident

* The views expressed here do not necessarily represent the views of the Bureau of Agricultural Economics or the Department of Agriculture; they are the responsibility of the author alone. The author, however, wishes to take this opportunity to thank Robert H. Masucci for his assistance with several elusive concepts, and to acknowledge the helpful suggestions and criticisms received from Rex F. Daly, Winn Finner, J. P. Cavin, F. V. Waugh, Sherman Johnson, Bushrod W. Allin, and James G. Maddox in the preparation of this paper.

¹ A surplus may be defined as follows: (1) With flexible prices, a situation wherein an extreme price decline fails to stimulate a reduction in the supply offered and force prices upward once again; (2) with fixed or supported prices, a situation wherein supplies fail to clear the market at the fixed prices; a shortage condition is, of course, the converse of that just described.

² Harold Barger, and Hans H. Landsberg, *American Agriculture 1899-1939. A Study of Output, Employment and Productivity*, National Bureau of Economic Research, Inc. 1942. Chapter II.

when we look at individual commodities—the *problem of general agricultural price swings*. For many, if not most, agricultural commodity prices move up and down together, and in wide fluctuations and thus violently influence the returns to farming.

The logic of treating agricultural output (or food output as in the empirical analysis) in the aggregate is that there is a high degree of substitution between individual farm enterprises in most areas and at the extensive margin of all areas in response to commodity price changes, but not between farm and nonfarm enterprises. For example, farmers shift readily between potatoes and sugar beets, corn and hogs, but not between farming and banking or farming and manufacturing. On the demand side too, particularly in the case of foods, consumers are continuously substituting less expensive items for more expensive items. Thus, through the ever-operating process of substitution, prices of individual agricultural commodities hold their relative positions with some precision even though the level of all agricultural prices may be shifting radically.

The agricultural commodity price level does not move in close harmony with the nonagricultural price level for the very reason that the process of substitution, both on the production side and on the consumption side, breaks down or is severely restricted as between the agricultural and nonagricultural segments of the economy. To an important degree agriculture represents a water-tight compartment within which there is considerable fluidity, but the connective valve between the agricultural compartment and the rest of the economy works poorly and sometimes almost not at all.

In sum then, there is an economic justification for an aggregative analysis of which the unit of analysis is total agricultural output. Hence, we shall now attempt an explanation of price behavior in agriculture by relating overall demand to the total product of the water-tight compartment.

II

Our hypothesis is, it is hoped, somewhat novel, but it is not overly complex if the reader can free himself from the static Marshallian cross. The aggregate output curve for agriculture is exceedingly inelastic for any given period and given productive organization. That much seems evident. The peculiar unity of occupational functions (labor, technological and business management), the fixity of the labor supply, and the importances of overhead costs as com-

pared with operating costs on family farms,³ argue for the plausibility of an inelastic aggregate output curve.

In this connection the term *output curve* is used advisedly, for the concept involved is not the instantaneous supply schedule of Alfred Marshall⁴ or the record of successive price equilibria (trend line) of Norman Silberling.⁵ We have in mind an obvious concept—the size of the total product which farmers in the aggregate will produce at varying levels of price in any given year. Thus, the aggregate output curve under consideration is, in an orthodox fashion, a function of price. But since agricultural output can emerge only through time, farmers cannot stand ready to produce instantaneously varying quantities of product at different levels of price. A farm output schedule conceptually comparable to the supply schedule of traders, who may at any instant of time, stand ready to sell varying quantities of product at different prices, is inappropriate here. But a schedule of intentions to produce—the product that farmers in the aggregate plan to produce at varying levels of price—is conceptually possible. In other words, an output function in a schedule sense can exist only in the planning phase of the production process when farmers are deciding how much to try to produce. Therefore we define the output function in terms of this schedule of intentions to produce (this postulated inelastic schedule is shown graphically as curve II in fig. 1, chart A).

The aggregate demand function (DD in fig. 1, chart A) is also distinctly inelastic in slope, but not as severely so as the output curve. And it is conventional in all respects. But the introduction of a schedule of intentions to produce raises the problem, among many others, of time sequences in the demand, price and output relationship. The demand function cannot be related to a schedule of intentions to produce—such a relationship has no meaning, for buyers are seeking goods not intentions. Thus, the demand function assumes a meaningful role in this context only when related to *realized output*. The schedule of intentions to produce is a function of price, but a definite price solution results only after the production process is complete and the bargaining over a real basket of goods yields

³ These ideas are developed fully by John Brewster and Howard Parsons in their recent article "Can Prices Allocate Resources in American Agriculture?" This JOURNAL, November, 1946.

⁴ *Principles of Economics*, 8th edition, p. 344.

⁵ "Graphic Illustration of the Laws of Price," *American Economic Review*, September, 1924, pp. 431-442.

a unique price (price level in this case). Step by step, then, our conceptual framework leads us into the familiar cobweb theorem type of analysis⁶ developed by Mordecai Ezekiel some years ago. But since our analysis differs somewhat from the Ezekiel models, and we have a particular interest in the slope and position of the curves involved, it seems necessary to chase ourselves around the cobweb a brief time or two.

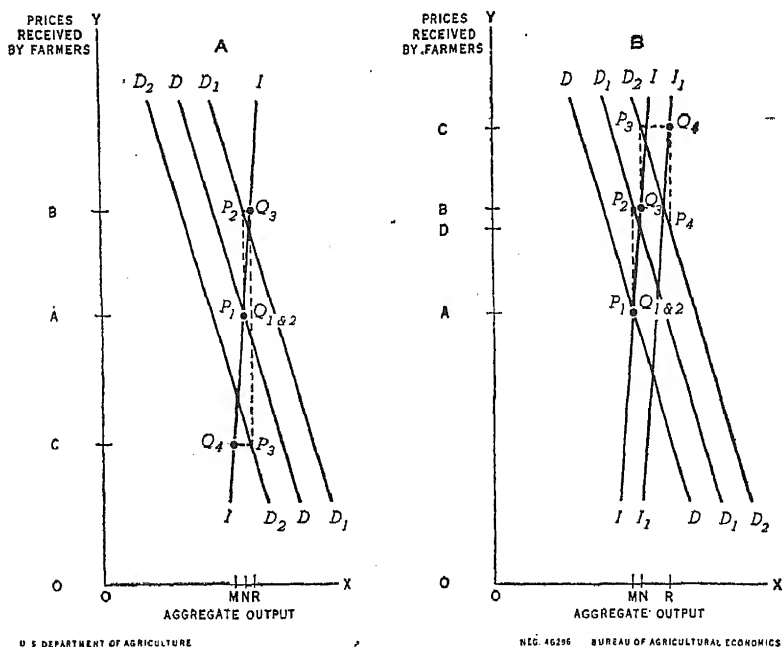


FIG. 1. A working hypothesis regarding the slope and relationship of the aggregate demand curve to the aggregate output curve.

Given to the analysis is a positionally fixed and inelastic schedule of intentions to produce II in fig. 1, chart A, and a realized output Q_1 (ON amount) falling exactly on the schedule of intentions in crop year 1. Also, we must take as given, in order to break into an endless stimulus and response sequence; an aggregate demand curve DD for crop year 1. Since demand equals realized output in crop year 1, a price P_1 (OA value) results. And price P_1 induces farmers

⁶ *Quarterly Journal of Economics*, February 1938, pp. 255-280.

in the aggregate to plan to produce a product Q_2 in crop year 2 or (ON amount once again). It is assumed, further, to simplify the analysis, that farmers' intentions are exactly realized and Q_2 product (ON amount) is forthcoming in crop year 2.⁷ But within the interval of time required in the production process between the planning phase and harvesting for sale phase, demand shifts to D_1D_1 . The realized product Q_2 sells at P_2 price (OB value) as indicated on demand curve D_1D_1 . The P_2 price then induces farmers in the aggregate to try to produce Q_3 product (OR amount) in crop year 3. Once again it is assumed that production plans are exactly realized and Q_3 product is forthcoming in crop year 3. But within the time interval required by the production process aggregate demand has contracted to D_2D_2 , so Q_3 product sells for P_3 price (OC value) in crop year 3, thereby inducing farmers to try to produce Q_4 product in crop year 4. And so it goes.

Conceptually then, it is the movement of a severely inelastic demand curve indirectly along (through the vehicle of a time sequence) an even more inelastic and *fixed* schedule of intentions to produce that determines (1) the price level at which the total product of agriculture moves and (2) the total amount of product that will move. And significant for this analysis, the slope of the two curves and their relationship through time results in an almost infinitesimal quantity response and a violent price response to any given change in demand.

But the proposition that the aggregate output function is positionally fixed requires some further explanation, for it is an historical fact that the total output from the national agricultural plant has trended upward over the years. According to our hypothesis the position of the output curve is not completely independent of demand, but is, under certain conditions, related to the movement of demand. To take a special but important case, if for any reason total demand should expand (the demand curve shifts to the right) in a period in which new technologies of production are seriously modifying the production process—forcing a reorganization in the production process—we then obtain a result fundamentally different from that outlined above. *The schedule of intentions to produce,*

⁷ It is recognized, of course, that realized output will vary to some extent from the theoretical quantity. All manner of institutional and physical influences (e.g. droughts, bountiful weather, a trucking strike, a miraculous innovation) operate continuously to force realized output away from planned output.

itself, shifts to the right with the expansion in demand (see fig. 1, chart B).

The stimulus-response sequence (planning phase, movement in demand, realization of output, price determination, planning phase again) is the same in chart B as in A through the planning phase of crop year 3. But between the planning phase and the realization of those plans in crop year 3, aggregate demand expands to D_2D_2 . Consequently the realized output sells at P_3 price (OC value). This P_3 price experienced during the formative period of intentions induces farmers in the aggregate to invest heavily in machinery and equipment. And heavy investments in new and more efficient machinery expand the capacity to produce—hence, shift the schedule of intentions to produce to the right. Continuing the sequential analysis, farmers in the aggregate plan to produce Q_4 product located on the new and more productive schedule of intentions to produce (I_1I_1). If demand holds constant at D_2D_2 , the Q_4 product (OR amount) will sell at the reduced price P_4 (OD value). But should the total demand for farm products continue to expand in this context of developing technologies, the aggregate output curve may continue to drift to the right, taking up successively new and more productive positions.

The logic of the shift to the right in the position of the aggregate output function in response to an increase in demand is evident if we reflect for a moment on the relationship of technological change and the introduction of innovations to demand and price conditions. In the first place, the output curve shifts to the right as output per unit of input increases. And the output per unit of input usually increases as new technologies are incorporated into the production process. But if demand is not expanding—that is, if the curve DD is not shifting to the right thus creating a favorable economic milieu—most farmers would not have (1) the optimistic price expectations and (2) the financial resources to introduce labor saving or capital saving innovations into their farming operations even though the introduction of those innovations would reduce unit costs in any period. Farmers, like other businessmen, tend not to make net investments in machinery and equipment when their outlook is dampened by currently depressed prices and their sources of credit are restricted; they tend to invest when the future looks bright and credit is easy.

In a period of stationary or contracting demand “know how”

and enhanced physical productive capacity accumulate, so to speak, in an unused pool. Now given an expansion in demand, output increases as known technologies are put into practice, with the result that the aggregate output curve jumps to the right or drifts to the right through a succession of temporary positions, taking up a new fixed position 'defined by a new productive organization centered around the technologies recently placed in operation. But once the pool of unused technologies are incorporated into the production organization, limited always by the labor force on family farms, further increases in demand fail to increase productivity—shift the output curve further to the right. Further increases in demand simply develop a stimulus-response sequence centered around the inelastic output curve (I_1I_1 in fig. 1, chart B) yielding substantially higher prices and inconsequential quantity increases. In general terms then, an increase in demand may, in one phase, increase price and not output, and, in another phase, may increase output and not price.

The skipping action described above, however, is not readily reversible. If, for example, the aggregate demand curve DD moves sufficiently to the right in the necessary technological context to cause the output curve to also shift to the right, the output curve does not shift back to the left with a contraction in demand. The demand curve will rather initiate a stimulus-response sequence centered around the output curve I_1I_1 wherein prices fall precipitously and quantity changes almost not at all. For the behavior of aggregate output in the field of agriculture following a general price decline is not one of contraction. On the contrary, it is one of sustained output. Once the output function (schedule of intentions to produce) has shifted to the right, it remains fixed in that inelastic position until some new demand stimulus causes it once again to shift to the right.

But to return to the central argument, given a severely inelastic demand curve for the total product of agriculture and an output curve such as (II) diagramed in fig. 1, it necessarily follows, except for the special case where the output curve shifts to the right, that a movement in the aggregate demand curve (DD) must be accompanied by a substantial price change and by a inconsequential quantity change. The geometry of the demand-output cross is simply such, granting the above exception, that any shift in demand (it is assumed to be the more flexible edge in the scissors relation-

ship) must result in a relatively small response along the quantity axis and a relatively large response along the price axis.

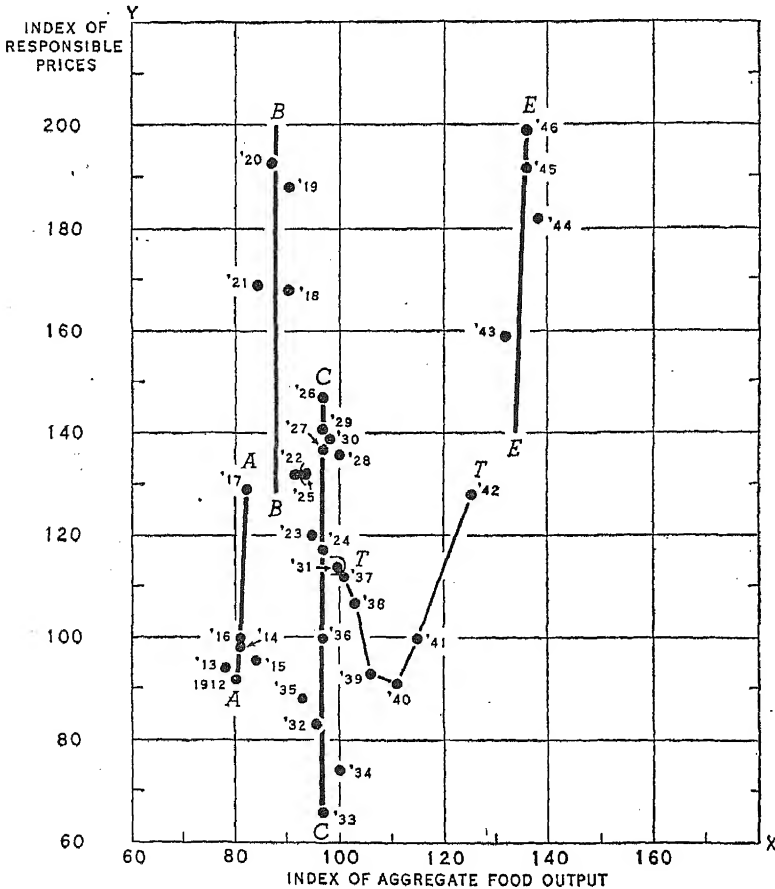
III

An hypothesis has been sketched regarding the aggregate demand for, and the aggregate output of, the national agricultural plant. A severely inelastic output curve replete with a special curve shifting mechanism is postulated. Similarly, a severely inelastic demand curve is postulated and related through time to the output curve. The next step, then, is to see how well our hypothesis squares with the world. Or more concretely, is there any empirical evidence to substantiate the aggregative hypothesis?

To test this hypothesis, however, it becomes necessary to restrict somewhat our field of inquiry. An aggregative output function for agriculture may be constructed with some meaning and facility. But an aggregate demand function for the product of agriculture is not so easily constructed, and once constructed along compromised lines, it has little economic meaning. Thus, for purposes of this analysis an aggregate demand curve for food is related to an aggregate output curve of food. This procedure weakens the analysis in one way—some substitution takes place in the production process between tobacco and cotton on one hand and food items on the other, hence, the output curve for total food may be somewhat more elastic than the output curve for the total product of agriculture. But a meaningful demand function related to the output function is needed to complete the analysis; thus, there seems to be little choice but to accept an output function which represents something less than the aggregate product of agriculture.

Since the quantity data we shall be working with in the empirical analysis are realized data (the plotted observations in fig. 2 represent the amount of product that farmers are induced to produce by the prices received during the planning phase, modified by plus and minus influencing factors at work during the production period), in order to test the aggregative hypothesis it is necessary that one critically important analytical requirement be satisfied. That requirement is that, the demand curve moves along and the stimulus-response sequences thus initiated occur along a *positionally fixed schedule of intentions to produce*. It should be clear why the above analytical requirement must be satisfied if we are to obtain a true output curve. For should the schedule of intentions to produce (i.e.

output curve) move and the demand curve remain fixed, the resulting points would trace out a demand curve. And if, as it may happen, both curves are shifting, we obtain nothing more than a line connecting an historical series of price-quantity points. So if we are to test the hypothesis—that the aggregate output curve is severely



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FIG. 2. The index of aggregate food output is plotted against the index of responsible prices to yield a nest of aggregative output curves. These curves are historical in the sense that they emerge through time. But the quantity points through which the curves are drawn are a function of prices (responsible prices), thus in those cases where the schedule of intentions to produce remains unchanged throughout the phase (1912-17, 1918-22, 1923-36, and 1943-46) the fitted curves must be the true output curves.

inelastic—using realized data, we must find a period or periods in which (1) aggregate demand is shifting and (2) changes in productivity—changes in output per unit of input—are at a minimum.

When we relate an index of aggregate food output⁸ to an index of “responsible prices”⁹ over the historical period 1912–46, the resulting price quantity points fall into a definite and meaningful pattern (see fig. 2). In appraising the configurations of fig. 2, however, it must be constantly held in mind that the years (e.g. 1944, 1945, and 1946) associated with particular points refer only to realized output. The responsible prices—the prices that induced these outputs—are of an earlier date corresponding to the beginning of the production process. The movement in demand and the stimulus-response sequences centered around the demand curve are simply assumed here, with only the “end product” realized output taking on concreteness in the form of a quantity point. And from these realized output points which differ from the original intentions only by the modifying factors at work during the production process we derive the output curve.

It will be observed that there are five historical phases (1912–17, 1918–22, 1923–36, 1937–42, and 1943–46) through which curves are drawn in fig. 2. It is our contention that four of those curves (AA, BB, CC, and EE) are true output functions. No significant change in productivity (output per worker) occurred in agriculture during any one of those phases, although it certainly changed—increased

⁸ Nonfood items are simply broken out of the index of the volume of agricultural production for sale and consumption in the farm home (source, Division of Statistical and Historical Research, Bureau of Agricultural Economics) to yield an index of aggregate food output. This index was used in preference to several others for two reasons: (1) The nonfood items were easily removed from total agricultural production, and most important, (2) it is less sensitive, than other indices that might have been used, to the weather influencing factor.

⁹ The term “responsible prices” refers to those prices which *cause* farmers to make the decisions that they do in planning for this year’s or the current year’s production. Thus, we may expect the responsible prices, in most cases, not to be current prices, but rather the prices received in some earlier period: In the case of annual crops, perhaps when last year’s crops were sold; or in the case of dairy or beef cattle, perhaps the two years previous to the year in question. The index of responsible prices used in fig. 2 upon which much of this analysis turns is constructed with the following price leads: (1) lambs, chickens, hogs—average monthly prices from July of the previous year to June of the current year; (2) beef cattle—average price for the current year and two previous years; (3) eggs—average price for the current year and previous year; (4) dairy products—average price for the current year and two previous years; (5) crops—average monthly price from July to December for the previous year.

TABLE 1. INDICES OF FARM EMPLOYMENT AND OUTPUT
PER WORKER (1935-39 = 100)

Year	Farm employ- ment ¹	Index of agricultural production for sale and home use ²	Output per worker	Comments
1912	110	85	77	AA phase.—Fixed productivity —average output per worker =77 on index.
1913	110	81	74	
1914	110	86	78	
1915	110	86	78	
1916	110	83	75	
1917	108	86	80	
(Jump in productivity)				
1918	104	90	87	BB phase.—Fixed productivity —average output per worker =86 on index.
1919	102	91	89	
1920	104	92	88	
1921	105	83	79	
1922	105	91	87	
(Jump in productivity)				
1923	104	94	90	CC phase.—Fixed productivity —average output per worker =94 on index.
1924	104	98	94	
1925	105	97	92	
1926	106	100	94	
1927	103	98	95	
1928	104	102	98	
1929	103	99	96	
1930	102	98	96	
1931	102	102	100	
1932	101	96	95	
1933	101	96	95	
1934	99	93	94	
1935	102	91	89	
1936	101	94	93	
(Jump in productivity)				
1937	100	106	106	TT phase.—Productivity in- creases continuously from 106 to 130 on index.
1938	99	103	104	
1939	98	106	108	
1940	97	110	113	
1941	95	113	119	
1942	95	124	130	
(Jump in productivity)				
1943	94	128	136	EE phase.—Fixed productivity —average output per worker =143 on index.
1944	92	136	148	
1945	90	132	147	
1946	92	131	142	

¹ Includes farm operators, other family workers, and hired workers. Annual averages, source: *Farm Wage Rates, Farm Employment and Related Data*, BAE, 1943, p. 155.

² Source: *Agricultural Statistics*, USDA 1945, p. 437.

—as between the delineated phases (see table 1). Nothing changed technologically within each of the phases under consideration to cause farmers in the aggregate to plan to produce more product at the same price in the succeeding year than in the current year. Consequently, the shifting demand curve *within each phase* traces out an output curve which is representative of the aggregate schedule of intentions to produce.

Does the evidence presented in table 1 indicate that our requirement, that the schedule of intentions to produce remain technologically fixed over a period of consecutive years, is satisfied? We think it does. The indices used in computing changes in productivity (output per worker) are standard and are regularly used, and four distinct periods of *stable* productivity emerge over the entire period 1912-46. For the six year period 1912-17 the mean average on the index of output per worker is 77, the extremes are 75 and 80 and no trend is apparent in the data. For the five year period 1918-22 the mean average on the index of output per worker is 86, the extremes are 79 and 89, and no trend is apparent in the data. For the 14-year period 1923-36 the mean average on the index of output per worker is 94, the extremes are 89 and 100, and no trend is apparent in the data. And for the final period 1943-46, the mean average on the index of output per worker is 143, the extremes are 136 and 147, and again there is no apparent trend in the data. In sum, we discover for the historical period in question four discreetly separated phases varying in duration from four to 14 years in which productivity—output per worker—is fixed, stable, unchanged; and variations around each mean appear to be random. And since demand conditions fluctuated from moderately within the AA phase to violently within the CC phase, the resulting realized output points within each phase must trace out four different output curves, each representative of the theoretical schedule of intentions to produce.

It is perfectly clear that the slope of each of the empirically drawn output curves (AA, BB, CC, and EE) in fig. 2 is almost identical—parallel—with each of the other three curves. Further, each of the curves is severely inelastic, bordering on the perfectly inelastic. Thus we conclude that the output function for food in the aggregate is completely or almost completely inelastic. For any given period and productive organization, sustained output is the norm. Food output in the aggregate is totally or almost totally

unresponsive to changes in price (price level in this case).¹⁰ This conclusion is certainly not revolutionary. Most economists have felt or known vaguely for a long time that the aggregate output function for agriculture was inelastic (although the reasoning here applies only to total food output). But now we know a little bit more about how inelastic the aggregate food output curve really is, and we may know a little more about what the curve really is.

Now it may be argued that the mechanics of our analysis forces a perfectly inelastic output curve since each time the index of output per worker increases the output curve is shifted to the right. And it is only when the index of output per worker remains constant that we draw in a curve. Thus, the output curve must be perfectly inelastic. But such an argument is fallacious. The output functions isolated in fig. 2 could and would take on a more elastic slope if higher prices induced a greater employment on farms producing food, and lower prices induced a reduction in employment. For the aggregate product will vary in size, if the persons employed in producing food vary in number, *when worker productivity is constant*. But total employment in agriculture (a relationship which must hold for the food component) tends to hold constant¹¹ or decline modestly over the historical period under consideration, as if completely oblivious to price movements, whereas in the non-agricultural segment total employment fluctuates markedly in response to price movements.¹² Using employment as the unit for measuring productivity, the elasticity of the slope of the output curve depends on the number of persons employed—and it is simply the unique constancy of employment in agriculture which produces a perfectly inelastic output curve.

To this point nothing has been said concerning the curve TT in fig. 2. We purposely delayed any discussion of the curve TT be-

¹⁰ The question might be asked—Would the use of relative prices, farm prices relative to nonfarm prices, change the slope of these output functions? The answer is no. Since these curves are perfectly inelastic or practically so, all the use of relative prices would accomplish is a reduction in the amplitude of the curves. And since we have already argued that agriculture is, figuratively speaking, a water-tight compartment, the employment of relative prices in the analysis does not logically follow.

¹¹ The other extensive factor, number of acres harvested, has remained practically constant from 1917 to 1946 at 350 to 360 million acres.

¹² For example, over the long period of generally rising prices, 1937–46, agricultural employment remained almost constant (actually declining from 10.8 million to 10 million) whereas average number of persons employed in nonagricultural establishments increased from 30 million to 38 million. Even though we are dealing with employment in the aggregate, it seems evident that the aggregate may expand in the nonfarm segment, whereas it holds constant on the farm side.

cause it has properties separate and distinct from the other four curves. It is not an output curve. In fact, it should not be dignified by the name, curve. The TT phase and the line drawn through it is nothing more nor less than a line connecting a series of quantity points. It is true that the curves AA, BB, CC, and EE are also drawn through historical quantity points. But the basic difference between the line TT and the other curves is that productivity—output per worker—increases each year in the TT phase and not in the other phases. Thus we have the phenomenon of the output curve and the demand curve both shifting through time with the consequence that the realized output points do not fall into a functional relationship.

Since we know the slope of the aggregate food output curve to be similar to AA, BB, CC, and EE, and we also know by reason of the position of the realized output points that the output curve is drifting to the right, it follows that a curve perfectly inelastic or nearly so could logically be drawn through each of the annual observations 1937, 1938, 1939, 1940, 1941, and 1942. We must now face up to the problem—How it is that the output function remains stable or fixed in a given quantity position over a number of years, then shifts to the right to a new and more productive position, sometimes remaining in this new position for another series of years (e.g. from AA to BB), or in another context continues to shift to the right taking up successively more productive positions each year? To explain adequately pricing behavior in agriculture we must provide an explanation for this shifting action.

It will be remembered that an hypothesis was set forth in section II which said that the movement of the output function is related to the movement of the demand function, and it is the movement of demand which is causal. Given a situation wherein a pool of unused technologies and "know how" exists or the introduction of an innovation sufficiently important to force a reorganization in the productive organization occurs; add to this a strengthening in demand conditions—a shift in the demand curve to the right—we may then expect the output curve itself to shift to the right. The strengthening in demand induces operators to invest in new technologies, and the new technologies in turn increase the output per unit of input. On the other hand, a contraction in demand—a shift of the demand curve to the left—does not result in a reversing action by the output curve. In any situation, other than the special

but important case where the aggregate demand for food is increasing in conjunction with technological development, sustained output is the norm for agriculture. That, briefly, is a restatement of our hypothesis.

Observing the shifting action by the aggregate output curve in fig. 2 and reviewing the economic history of the period between 1912 and 1946, it is evident that each shift to the right by the output curve has occurred (1) as the demand for food in the aggregate was increasing, and (2) in conjunction with a significant technological development at the production level. There are periods within the historical range 1912-46, however, when demand conditions were strengthening or at least maintaining a strong position, when the output curve does not shift to the right (e.g. 1918, 1919, and 1920; 1925, 1926, 1927, 1928, and 1929; and 1943, 1944, 1945, and 1946). Demand was increasing in each of those periods but not output per worker, consequently the output curve does not shift to the right under the stimulus of increasing demand. It is also abundantly clear from fig. 2 that the output curve does not shift back to the left with a contraction in demand. Neither does it assume an elastic position (slope downward and to the left). With a decline in demand the resulting quantity points trace out a curve as nearly perfectly inelastic as it is possible to draw a curve. Falling prices simply fail to induce a smaller output. Thus, the cushioning or braking action of a contracting supply present (in theory at least) in the usual demand-supply relationship does not come into play to help stabilize the gyrating farm price level.

The basic technological development occurring on farms in the 1912-46 period was the development of the gasoline engine with all the accessories surrounding it. The strong trend toward mechanical power on farms diverted thousands of acres of land and other resources away from the production of feed for horses and mules to the production of food for human consumption. It is estimated, for example, that 50 million acres were released for food production during the last 25 years.¹³

Beginning with the year 1916 the number of tractors on farms began to increase rapidly and in such total numbers as to affect production techniques (especially on the Great Plains). Also, the number of acres harvested increased significantly between 1916 and

¹³ Glen T. Barton and Martin R. Cooper, *Farm Production in War and Peace*, December, 1945, p. 6. USDA.

1918. Thus an explanation is offered for the shift in the output curve from the position AA to the position BB between 1917 and 1918. And if the period 1917-19 had not been a war period—a period in which machinery and equipment supplies for domestic use become extremely scarce—it is possible that the output curve would have continued to shift to the right. For, other things being equal, farm operators probably would have purchased and placed in operation a greater number of tractors and other machinery than they actually did. But aggregate output did not respond to the violent price increases of that period because it could not—the slope of the output curve was fixed by the limited manpower resources; the position of the curve was fixed by limited supplies of machinery and equipment. Consequently the outlet for the greatly expanded demand took the form of higher prices as the sequence—realized output, to expanded demand, to increased price, to plans for increased production, to realized output once again—formed a neat staircase up the fixed schedule of intentions to produce.¹⁴

When the demand for food in the aggregate drops precipitously in 1921 and 1922 the output curve does not shift back to the left to the original AA position. Rather, the resulting quantity points trace out a curve perfectly inelastic as the demand curve works down a perfectly inelastic schedule of intentions to produce. But following the business recession in 1921 and 1922 the demand for all foods began to expand once again, and contrary to the war experience we do not obtain an extreme price response. With the increase in aggregate demand the output curve shifts to the right taking up a new and more productive position CC. And the total realized food output as expanded in 1923 and 1924 actually sold at a lower level of prices than in the depressed year of 1921 (see current year prices in table 2).

The aggregate food output curve does not retrace the 1918-22 phase for one important reason—the gasoline engine. The gasoline engine became an important source of power on farms during the 1920's, as tractors on farms increased from approximately 250 thousand in 1920 to nearly one million in 1930,¹⁵ and thereby re-

¹⁴ The actual or the index of food prices for any year can be seen in table 2, and should not be confused with the responsible prices used in fig. 2. For any crop year prices are the result, but in turn become responsible for the output responses of some future year.

¹⁵ (Sherman Johnson) *Production Adjustments—1945 and Postwar*; address before the Outlook Conference, Nov. 19, 1944, p. 15.

TABLE 2. PRICES RECEIVED BY FARMERS FOR FOOD 1910 TO DATE,
INDEX NUMBERS (1935-39=100)

Year	Index
1910	91.3
1911	83.2
1912	90.5
1913	94.0
1914	94.9
1915	93.0
1916	107.7
1917	153.3
1918	174.6
1919	186.1
1920	181.3
1921	119.1
1922	116.2
1923	116.9
1924	116.5
1925	136.8
1926	137.8
1927	131.8
1928	137.6
1929	137.8
1930	120.3
1931	86.0
1932	64.5
1933	64.8
1934	76.5
1935	93.7
1936	104.7
1937	111.7
1938	94.0
1939	90.9
1940	94.7
1941	116.4
1942	146.4
1943	175.9
1944	174.7
1945	182.6
1946	210.7

leased considerable productive capacity from the production of feed grains and hay for work stock to the production of food products for human consumption. And these increases in output per unit of input made possible by the gasoline engine and made practical by a strong demand literally jumped the output curve to the right into a more productive position (CC).

The demand for food, however, continued strong throughout the 1920's, and tractors and power machinery were added to the na-

tional farm plant at a rapid rate over the entire 10-year period. Why is it then, that the output curve does not continue to shift to the right between 1925 and 1928 when the two conditions of a strong demand and the proper technological base would seem to be satisfied? Frankly, we are not sure. But two considerations may be involved. First, although the general purpose tractor was introduced in 1924¹⁶ it was not widely known or used until the middle and late 1930's. And it may well be that simply adding old type tractors with wide treads was not enough. Once the older type of tractor had forced a reorganization in productive organization in the Great Plains, it was spent as an efficiency producing force, for its design severely limited its use in the Corn Belt. Second, although prices were high absolutely as compared with the "Golden Age of Agriculture" (1910 to 1914) they were not high relative to price expectations immediately following World War I when heavy indebtednesses were assumed by farmers in the purchase of high priced land. The outlook of farm people was dampened in the late 1920's so that they did not purchase and put into operation the amount of new machinery and equipment that the abstract conditions in fig. 2 would seem to warrant. In sum, the number of tractors on farms and the appendaging equipment increased substantially during the late 1920's, but it did not occur at the rate necessary, or in the form necessary, to increase output per unit of input.

But the aggregate demand for food did not continue to expand and force the level of food prices to the dizzy height obtained in 1920. The demand for food began to fall in 1930 and it fell violently in the early 1930's. *But here we observe that the output curve does not skip back to the 1918-22 phase (BB position) with a contraction in demand in a reversing action.* With the decline in demand which occurred in the early 1930's the empirically drawn aggregate output curve traces out a perfectly inelastic curve. The output curve in this phase is a classic example of sustained output. Being blessed or cursed with relatively high overhead costs and low operating costs farmers maintained production at or near the capacity levels achieved during the 1920's.

During the early 1930's technologies continued to pour forth, but at the experimental level rather than the production level. Again those developments are organized around the gasoline engine. Important innovations also occurred in the field of biology. But in the

¹⁶ Barger and Landsberg, *op. cit.*, p. 207.

main they were not put into practice. The demand and price situation did not warrant their adoption. Hence, a great pool of technologies and "know how" accumulated during the early 1930's, the various items of which began to find their way into individual farm operations between 1937 and 1939. But when farm prices and incomes advanced with the war boom (1940-42) the latent technologies were jammed into practice.¹⁷

The period, 1937-42, is the perfect example of the output skipping action postulated in section II. The aggregate demand for food became increasingly stronger over the period, and thus created the favorable price and income expectations necessary to the heavy investment in machinery and equipment. And with the huge pool of technologies developed in the early and middle 1930's, actually placed in operation, farm productivity continued to rise over a 6-year period. So by 1942 we obtain a situation wherein aggregate output at any given price is substantially greater than was the case in 1937. This situation is described in more vivid terms by Barton and Cooper:

"The war period really represented the pay-off period, or the time when farmers were able to use to greatest advantage the large supplies of modern farm machines that were developed, and improved time and again, during the last 30 years. Although the wartime demand exceeded greatly the restricted supply of labor-saving farm machines, farmers as a whole had more tractors and tractor equipment than at any time in the history of the country. Numbers of grain combines, corn pickers, field silage harvesters, pick-up balers, side-delivery rakes, milking machines, and some other popular machines, are greater now than before the war. These helped immeasurably the depleted labor force to do the tremendous wartime farm production job well and in season."¹⁸

The great price advances, which did not materialize between 1937 and 1942 because each time the demand curve shifted to the right, the output curve shifted with it, did come into being between 1942 and 1946. For the output curve stopped shifting to the right after 1942, whereas aggregate demand continued to expand; thus the staircase sequence develops wherein the price level is higher with each succeeding year. Now it is possible that the national farm plant was completely organized into the best adapted productive organization by 1942, so that further investments in machinery and equipment would not have further stepped up productivity. But for our

¹⁷ See *Agricultural Statistics*, 1945, pp. 454-455, tables 590, 1 and 2, for data on the manufacture and sale of power equipment and farm machinery from 1929-44.

¹⁸ *Op. cit.*, p. 2.

purpose it does not really matter, for we know that further extensive investments in machinery and equipment were shut off just as they were in World War I. Thus, further increases in productivity, assuming they were attainable, were limited by the war effort, and we have a satisfactory explanation as to why the output curve ceased shifting to the right.

Assuming that the above historical interpretation of the movement of the aggregate food output curve is tenable, how do the empirically developed curves square with the conceptual curve postulated in section II? A quick comparison might lead to the conclusion that the curves are unlike. But a closer inspection of the two curves or nests of curves forces the conclusion that the basic properties of the two sets of curves are the same—only the empirical curve is somewhat more inelastic than originally conceived. The empirical curve shifts to the right in much the same manner as that postulated for the output curve in fig. 1, *when the movement of aggregate demand is taken into consideration.*

Given a strong or expanding demand and a situation where new technologies are still to be incorporated into the production organization, then we can look for the aggregate output to shift to the right. But upon the achievement of, or realization of the best adapted organization, further movements of the demand curve—expansion or contraction—must trace out a severely inelastic phase of the aggregate output curve. *Given the best adapted production organization*, output is unresponsive to changes in price; sustained output at or near maximum capacity is the norm.

The time has come—not to speak of cabbages and kings—but rather the aggregate demand for food. What does the aggregate demand curve for food really look like? What is its slope, and what are the elasticities of that slope? One empirical formulation is presented in fig. 3—the formulation which is defined as the aggregate demand for food for purposes of this analysis.¹⁹ The regression line

¹⁹ To derive the line of regression shown in fig. 3 a multiple regression analysis of per capita food consumption, per capita disposable income, the ratio of food prices to nonfood prices, and the "catch all" factor time was first made. From the multiple correlation analysis the net variations in per capita food consumption associated with income and time were isolated and removed. Then the ratio of food to nonfood prices was related to an *adjusted food consumption series*. In other words, the multiple regression analysis provides the weight of each factor influencing consumption and once the weight of each influencing factor became known, the influence of income and time were removed so that the remaining variations in food consumption might be related to the price ratio. For a more detailed treatment of this technique see *Methods of Correlation Analysis*, Mordecai Ezekiel, p. 181-182.

(DD)²⁰ in fig. 3 shows the relation between (1) the ratio of food prices to nonfood prices and (2) the per capita consumption of food *after the net effects of income and trend have been removed from the consumption data*. Stated differently, the curve DD associates the relative prices of food with the per capita consumption of food after the curve shifters income and trend have been removed.

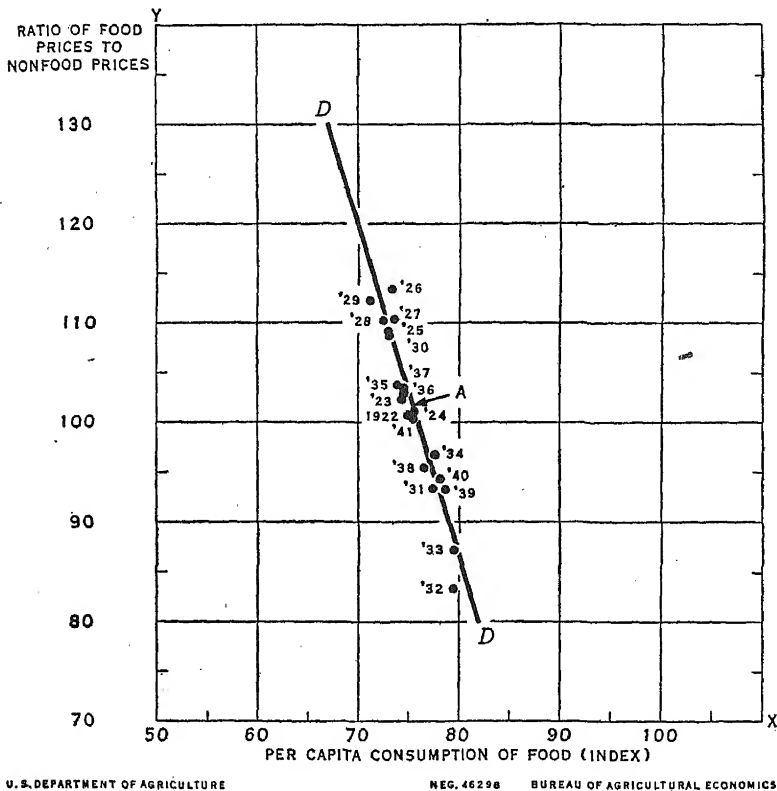


FIG. 3. The line DD may be defined as the aggregate demand curve for food. It is a regression line fitted to the points relating the ratio of food prices to nonfood prices on one hand, and per capita food consumption adjusted for income changes and trend on the other (the war years are excluded from the regression for obvious reasons).

The question may be raised—Is the regression line (DD) in fig. 3 conceptionally a true demand curve? To the writer there is little doubt. It shows the different quantities of food consumed—taken—

²⁰ The equation of this line of regression is given by $Y = 346.95 - 3.25X$.

as the price of food changes relative to the price of all other consumer items. And the function is negative—slopes down and to the right—which is true of all demand functions. Further, it will be observed that a clear, if not perfect, relationship emerges when the adjusted data are plotted.

The slope of the empirically formulated aggregate demand curve is almost identical with the curve postulated in section II, which means that the elasticities for comparable points on the two curves are similar, and both are highly inelastic. For example, the elasticity of demand of the empirical curve is $-.41$ at the point of averages (point A). In somewhat different terms, a 10 percent rise in the price ratio is associated with a 3 percent reduction in the per capita consumption of food. In short, the historical price-quantity data support the original hypothesis regarding the demand for food—namely that the aggregate demand function is severely inelastic.

IV

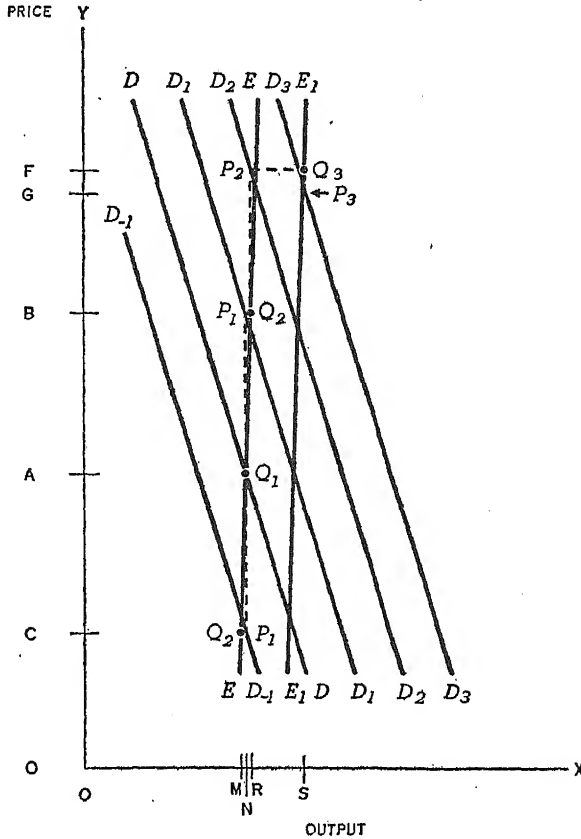
When the empirically derived curve is superimposed upon the empirically derived output curve, we can trace out clearly the effects of changes in demand upon prices and output (see fig. 4). Absolute quantities are not shown in fig. 4, but the slopes of the demand-output curves are facsimiles of those presented in figs. 2 and 3. Hence, the central thesis of this paper finds substance in the following analysis.

Given the slope and position of the aggregate demand curve and aggregate output curve in fig. 4, and a situation wherein the output curve is technologically fixed—a situation wherein the best adapted productive organization has been temporarily achieved—we then have the basic ingredients out of which to provide an explanation of the dramatic price movements in agriculture. We can provide, for example, a rationale for the 1950 postulations²¹ where the descent from full employment to a serious depression is accompanied by a precipitous drop on the index of prices received by farmers from 165 to 75 and a modest decline on the index of production from 135 to 115.

Specifically, should the demand curve shift to the right, from DD to D_1D_1 (fig. 4), between the planning phase and the harvesting for sale phase of crop year 1, the realized output Q_1 (ON amount)

²¹ Postwar Agriculture and Employment, *What Peace Can Mean to American Farmers*, Misc. Pub. No. 562, USDA, p. 25.

will sell for a price P_1 (OB value) as indicated on the curve D_1D_1 . And the price P_1 in turn induces farmers in the aggregate to plan to produce Q_2 product (OR amount) in crop year 2. It will be observed that the price increase A to B associated with the increase in de-



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FIG. 4. The aggregate demand curve DD from figure 3 is superimposed on the aggregate output curve EE from figure 2.

mand is more than proportionate to the increase in demand (over 3 times), and the output increase N to R is less than proportionate to the increase in demand (practically negligible). In short, an increase in the demand for food results in an almost exclusive price response.

Now let us look at the economic consequences of a decrease in demand. The resulting effects of a decrease in demand are the exact converse of those isolated with an increase in demand. When the business outlook darkens and demand conditions weaken, farm operators do not so revise their intentions to produce that we obtain a new and more elastic schedule of intended output. Neither do they revise their intentions to produce so that the output curve shifts back to the left. Farmers confronted with a falling market react in a definite and defiant manner—*by maintaining their output*. Thus in fig. 4 we obtain a precipitous price decline (A to C) with practically no reduction in output as demand falls from DD to D_1D_1 .

We have pursued the price-output sequence up and down a fixed output curve. If now we make two assumptions—(1) that aggregate demand is expanding, and (2) that one or more innovations occur of sufficient importance to force a reorganization in the farm plant with the result that the plant becomes more efficient—we may expect the output curve to take up a new and more productive position E_1E_1 , representing a clear break with the older output curve (EE). Given a strong demand and an improved technological base, farm operators form a new schedule of intentions to produce involving a greater number of output units for each measure of price. Thus we obtain a price *and a quantity* response of consequence with an increase in demand, but not within the framework of a static demand and supply relationship.

Referring back to fig. 4 it is assumed that aggregate intentions to produce Q_2 product are exactly realized, and this total product is sold for P_2 price (OF value) as indicated on the expanded demand curve D_2D_2 . But the expansion in demand has also shifted the schedule of intentions to produce to the right; thus the price P_2 induces farmers in the aggregate to try to produce Q_3 product (OS amount) in crop year 3, with the result that the increase in demand does not spend itself in a further price rise, but rather calls forth an additional product which, assuming the demand curve holds constant, moves into consumption at price P_3 (OG value) somewhat below the P_2 level of crop year 2. Here, then, is an explanation for the food price-output behavior between 1938-41. The price level holds fairly constant as demand expands, because the output function drifts to the right absorbing the force of the expansion in demand.

In the formal demand-output relationships presented in fig. 4 price declines modestly as the output curve shifts to the right in conjunction with the movement of the demand curve because we made the shift in output exactly equal to the shift in demand. Now if the shifting action of the output curve had been greater in magnitude than the shifting action of the demand curve, the point of price determination coming at the end of the production period would have been substantially lower; or, if the shifting action of the output curve had been smaller than the shifting action of the demand curve, the resulting price would have been higher than that indicated in fig. 4. Such results necessarily follow from the geometrical relationships involved.

These formal constructions pose the pre-eminently practical question: In a current situation how do we know whether an increase in demand will induce the output curve to shift to the right or simply force a steep price rise along the old output curve? And assuming for the moment that a given increase in demand induces a shift in the output curve to the right, what magnitude of shift in the output curve is associated with what magnitude of increase in demand? We have no pat formula that gives a unique answer to these questions. In each current situation the economist must sift out the relevant data and forces at work and make his own analysis or forecast. But we do believe we have provided a framework—a logical system—in which any particular analysis might be made.²²

To sum up, the key concept of this analysis is illustrated by the aggregate output curve (EE) in fig. 4. That curve is the graphical expression of the phrase—sustained output. The national farm plant concerned with food production operates along such a curve and within such a framework as to make the curve EE the output norm. This is not to overlook the short elastic or curve skipping phases; they play an important role in the larger pattern. The skipping phases of technological innovation and reorganization make possible the seemingly impossible: sustained output on one hand and increased productivity on the other. But once given the unresponsive pattern of output peculiar to agriculture, where prices may fluctuate wildly over a considerable period and output

²² A quantitative analysis is planned as the subject of a future paper, wherein the effects of a known shift in demand, say through the vehicle of a Food Allotment Program, are evaluated through the theoretical framework developed here with the results stated in terms of the conventional prices received index.

change almost not at all, then the movement of demand can do nothing but trace out a severely inelastic output curve. Obviously the more inelastic the slope of demand curve the more violent the price fluctuations must be; but in no way do the price swings effect adjustments in production, and hence output. Aggregate output simply does not contract or expand in response to general price changes and thereby help to stabilize the supposed causal element, namely, price.

USE OF THE ANNUITY PRINCIPLE IN TRANSFERRING THE FARM FROM FATHER TO SON

RALPH R. BOTTS*

Bureau of Agricultural Economics

ONE fourth of all farm ownership transfers occur within the family.¹ Scattered studies further indicate the importance of family assistance in helping farmers to achieve ownership of their farms.² The basic problem in many of these intra-family farm ownership transfers grows out of the fact that the lifetime savings of most farm parents are in their farm land, livestock and equipment. As a general rule, farm parents do not have sufficient cash or non-farm investments on which they can retire and turn their farms over to their children. Consequently, the parents either continue to farm for a living or lease the family farm to a son or daughter. The first situation discourages the children from taking over the farm. The second situation generally fails to provide for the transfer of ownership of the farm to the child on the farm when the parents die.

Other parents are using a plan which permits them to turn over the management, operation and eventually the ownership of the family farm to their children at an early age, while reserving an annual income for themselves for the remainder of their lives.³ This idea is commonly known as the "bond of maintenance" land-transfer arrangement. It is also referred to as a "bond of support" and a Bohemian contract.

The gist of this plan is the annuity principle, which has long been used in the field of insurance, though based on more precise calculations. The use of the annuity principle has a twofold purpose,

* The author is indebted to John F. Timmons, of the Bureau of Agricultural Economics, for helpful suggestions and criticisms.

¹ Agricultural Statistics, 1938, U. S. Dept. of Agriculture, p. 451; John F. Timmons, *Social and Economic Aspects of the Devolution of Agricultural Land Through Descent, Will and Gift*,² doctorate thesis, University of Wisconsin, 1945, pp. 121-135.

² Kenneth H. Parsons, and Eliot O. Waples, *Keeping the Farm in the Family*, Research Bull. 157, Agr. Exp. Sta., University of Wisconsin, 1946; J. T. Sanders, *Farm Ownership and Tenancy in Texas*, U.S.D.A. Bull. 1068, 1922.

³ Parsons' and Waples' bulletin, p. 22; Timmons' thesis, p. 113; Eliot O. Waples, *Farm Ownership Processes in a Low-Tenancy Area*, doctorate thesis, Univ. of Wisconsin, 1946, p. 220; Carl F. Wehrwein, "Bonds of Maintenance as Aids in Acquiring Farm Ownership," *Journal of Land and Public Utility Economics*, Nov. 1932, p. 396; George S. Wehrwein, "The Problem of Inheritance in American Land Tenure," this JOURNAL, April, 1927, p. 163.

"The children receive their inheritance when they are still young enough for it to help them materially in making their way in the world; and the parents are safeguarded from financial worry in their declining years."⁴ A wider use of this principle in intra-family farm transfers would encourage farm parents to turn their farms over to their children at an earlier age and enable the parents to live from their annuity incomes. A definite plan, with tables which expedite its adoption, will be discussed after a brief review of other—more common—alternative methods by which land-inheritance transfers are made.

*Some Alternative Methods of Transferring
Farms from Parents to Children*

Except in a few areas, relatively little is known of the extent to which farm properties are passed along as going concerns from one generation to the next. When free lands were abundant, the matter was of little consequence. But with the passing of the frontiers, we—like the people in the older countries—are giving more attention to stewardship of the soil and the transfer of farms from parents to children as economical units. Agricultural policy has long encouraged family-sized farms and technology has since enlarged our ideas of what constitutes an economical unit.

There are, of course, situations where further division of farm lands can be justified; but, by and large, it is no longer feasible to divide up the family farm—giving this 40 to Jim and that 40 to Jane—even for sentimental reasons. And to auction off the farm with its stock and equipment every generation, in order to obtain the money with which to settle the estate, usually results in loss to the heirs and an interruption of livestock and soil conservation programs for the farm.

Scattered studies lead us to conclude that most farmers make no wills and, in passing intestate, the *laws of descent* apply. From the standpoint taken in this article, these laws are not satisfactory except where there is only one heir. Only then would the farm be transferred intact to the heir. If there are two children, for example, they may be able to agree on a value of the farm and arrive at an equitable division of the estate; but no doubt the difficulties in

⁴ E. C. Harwood, and Bion H. Francis, *Insurance and Annuities from the Buyer's Point of View*, American Institute for Economic Research, Cambridge, Massachusetts, 1935, p. 151.

keeping the farm within the family as a unit increase with the number of children—because of differences in opinion that can only be settled at a public sale.

The making of a *will* is open to parents who, because of concessions to or from one or more children or for other reasons, are not satisfied with the distribution of the estate that will occur under the laws of descent applicable in their State. While this method of passing the farm to a child as an operating unit meets our requirements, it does not—except in isolated cases—have enough flexibility to meet the majority of situations. Generally, one child could not be willed the entire farm and its stock and equipment without doing an injustice to the other heirs. While the will could impose payments from the beneficiary of the will to the other children, this responsibility would require an unusual amount of judgment by the parents and might create friction later. Financial relationships within a family often change quite rapidly and the codicil attachments to the will probably could not be kept up to date.

Both the laws of descent and the will are open to the criticism that the exact time they will become effective is unknown. Furthermore, rights under intestate laws may be changed by the will, and the will itself may be changed at any time during the lifetime of its maker, thus creating additional uncertainty for the son. He may not be willing to await the result, particularly if an opportunity elsewhere appears attractive.

Under neither plan can a father transfer his farm to a son during his own lifetime, retaining for himself an income out of his accumulated savings. What, then, is the solution where one seeks security and the other opportunity? Much of the lifetime savings of the older farmer have come from increased land values resulting from the disappearance of lands to be homesteaded, and it is quite natural for him to consider his land as his wealth. Yet the accumulation of equities through accruals in land values will be much more doubtful for the son. As the future narrows, the needs of the parents diminish. They think more of the future of their children and more in terms of current income for themselves than net worth or asset valuation—even though the latter is merely the capitalization of the former.⁵ After all, it is the income produced by the physical assets that will establish their level of living. Any arrangement between

⁵ No doubt the income idea has been given impetus by recent high income-tax laws.

father and son should be on a business basis, as that is the only way the elderly couple can retain a feeling of independence and at the same time avoid hard feelings among the children.

Under any arrangement whereby the son remains on the farm, it appears that the farm must provide sufficient income to support both families. Then why not a partnership or joint-ownership arrangement between father and son? The advantages and disadvantages of such arrangements will require further discussion.

Under a *partnership* or "*tenancy in common*" between father and son, each may own a certain interest in the undivided property—not necessarily equal shares. If the arrangement is carried out formally, the determination of shares necessitates an actual division of property interests and of future income. If one dies, his share becomes part (or all) of his estate and must be divided in accordance with his will, or, if none was made, in accordance with the laws of descent. Thus these arrangements do not place the farm permanently in one name as a going concern. Usually they would merely prolong the transfer problem and sale of the farm, since an ultimate sale would probably be necessary in order to divide the farm value between the survivor and the heirs of the deceased partner.

Partnerships often lead to dissension between the partners. Each is the agent of the other and, as such, may bind him in transactions within the course of business. Each is jointly and severally liable for the acts of the other. If the father retires under the partnership, he could be held liable for future debts unless he gave notice of a limited partnership arrangement—perhaps by insertion in the local newspaper—together with details such as the capital contribution of each partner in the new arrangement.

What about a *joint tenancy with right of survivorship*? Usually such arrangements contain some such clause as "... to A and B as joint tenants, to hold as joint tenants, and not tenants in common, and to the survivor of them." Under this clause the share of the first joint tenant passes to the surviving joint tenant and not to the heirs of the deceased. If the father dies first, the son would become sole owner; but if the son died first, the farm would be back in the hands of the father, and our problem would not be solved.

It is much more likely, however, that the father would pass first, so that the son would obtain the farm as a unit. While the arrangement would provide for the old folks during their lifetime, unless

they have other holdings which they can divide by will among the other children, this plan is also not flexible enough to permit an equitable distribution of the estate among the children.⁶

As stated previously, if family transfers could be put on a more businesslike basis, it is quite likely that more farmers at the older ages would turn their farms over to their children and live off an investment income rather than a labor income.⁷ The mechanics whereby transfers may be made from living parents to one of the children (we will assume a son in the remainder of the article) for a fixed future income have long been used in the field of finance and insurance. Their application to this particular problem is presented in the next section. If there is a son ready and willing to take over the family farm when the parents are ready to quit, the application of the annuity idea would permit them—in effect—to “sell” the farm to him on condition that he pay them a future income during their lives. The parents could take a mortgage on the farm to guarantee payment of the monthly income by the son. Upon death of both parents, this mortgage would be cancelled. Thus a farmer might, by application of the annuity principle, provide for his own declining years and at the same time—if he has sufficient capital—liberate part of his holdings for use by his children while he still lives. It is with the practical application of this idea that the remainder of this article deals.⁸

The Farm Transfer Plan Based on the Annuity Principle

The first step would be to have the farm value appraised. The appraisal probably should be at a “normal agricultural value” rather than at market value. It is true that when farm prices are high the other children may feel that they are being disinherited if the farm is sold to a son at less than it could be sold to others. On

⁶ In some States property may not be vested in a joint tenancy with right of survivorship until it has first been conveyed to an individual who will not be one of the joint owners and then, by that person, be reconveyed to the joint tenancy. Of course this third party should be honest and have no outstanding court judgments against him.

⁷ Still more farmers would consider retiring if old age and survivor's insurance were extended to farmers.

⁸ A word of warning should be inserted, however, against any attempt to simplify the transfer of real property to avoid administration costs, for example by preparation of a deed to be filed for record after the owner's death. Such procedure could cloud the title in such a way that it would be difficult and expensive to clear. The conveyance should be bona fide and recorded where necessary. This will also avoid the question of whether or not an inheritance tax was due because of non-effective transfer.

the other hand, if the parents wished to retire in a period of low prices, the purchasing son might feel that he was paying more for the farm than it was worth. But if all heirs understand the intent and fairness of such an appraisal, there should be no hard feelings among them. Certainly from the standpoint of the purchasing son, his long-term commitment should be in relation to the average earning power of the farm. Otherwise, the purchasing son might find it very difficult, perhaps impossible, to meet his commitments when farm prices were low.

As a *second* step, the parents must decide how much of the farm value will be required to provide the necessary periodic future income. The accompanying tables will be useful in this determination.

The transaction, involving the release of the farm to a son, is a sale just as surely as if the farm were sold to an outsider and the money used to buy an immediate annuity from an insurance company. If the farm were actually sold to an outsider and the money used to buy an annuity, approximately $6\frac{1}{2}$ percent of the purchase price would be "loading" for company expenses, and $93\frac{1}{2}$ percent would be a "pure" or net cost calculated as necessary to make the contracted future payments to survivors. Thus \$935 under the proposed plan would buy the same income as \$1,000 would buy if placed with an insurance company.

Tables have been prepared and are included which show the monthly income, payable for life, that may be purchased with \$1,000 at different ages for single and joint lives. Methods used by insurance companies in computing the purchase price of life annuities are used, with the exception that loading for company expenses has been omitted. Calculations are based on the 1937 Standard Annuitants Mortality Table, using a $2\frac{1}{2}$ percent interest rate. Being net, of course they include no expense loading.

If only one parent is living, table 1 can be used to find the monthly income that might be purchased at different ages with a \$1,000 lump-sum payment. It has been found that women annuitants live about 5 years longer, on the average, than men of the same age, so the income that can be purchased for a given sum is the same for a man aged 60, for example, as it is for a woman aged 65. This is recognized practice in all annuity calculations based on life contingencies and has been used in all tables (except table 3).⁹

⁹ As stated, tables 1 and 2 are based on the *actual* ages of males and, in the cases of females, ages that are in each case 5 years less than the actual age. This "aging

TABLE 1. MONTHLY PAYMENTS FOR LIFE THAT \$1,000 WILL
BUY AS A SINGLE LIFE ANNUITY¹

Age of male	Age of female	Monthly payment
<i>Years</i>	<i>Years</i>	<i>Dollars</i>
50	55	4.72
51	56	4.83
52	57	4.95
53	58	5.07
54	59	5.20
55	60	5.34
56	61	5.48
57	62	5.64
58	63	5.80
59	64	5.97
60	65	6.15
61	66	6.34
62	67	6.54
63	68	6.75
64	69	6.97
65	70	7.21
66	71	7.46
67	72	7.73
68	73	8.02
69	74	8.32
70	75	8.64

¹ Based on 1937 Standard Annuitants Mortality Table, 2½ percent interest. Under this type of annuity the monthly payments are made during the life of the annuitant.

General formula:

$x = \text{age}$

$R = \text{monthly payment}$

$$R = \frac{83.333333D_x}{N_{x+1} + .54578D_x}$$

" N " defined as "bar N " or $D_x + D_{x+1} + \dots$ to end of table.

Calculation for male aged 64 (or female aged 69):

$$R = \frac{83.333333 \times 144,909.4}{1,653,095.7 + 79,088.652} = \$6.97.$$

back" of females for calculation purposes is to take care of their greater longevity. Of course actual ages only are shown in the tables and the ages used for calculation purposes are immaterial insofar as the use of the tables is concerned. Some companies, in calculating the "pure premium" cost of their life annuities, use ages that are one year less in each case than those described above. They "age back" the male life one year and the female life six years (one additional year) to compensate for the increased longevity which they believe has more recently taken place in both male and female lives. Such companies would, for example, arrive at the same monthly income for age 66 (in the case of either a male or a female life) that is shown opposite age 65 in tables 1 and 2, provided the sex is the same. Identical figures from the commutation columns would be used for both calculations.

TABLE 2. MONTHLY PAYMENTS FOR LIFE THAT \$1,000 WILL BUY AS A JOINT LIFE AND $\frac{2}{3}$ SURVIVORSHIP ANNUITY¹

Age of male	Male older than female					Equal ages	Female older than male		
	5 yrs.	4 yrs.	3 yrs.	2 yrs.	1 yr.		1 yr.	2 yrs.	3 yrs.
Years	Dollars								
50	3.97	4.01	4.05	4.10	4.14	4.18	4.23	4.27	4.32
51	4.05	4.09	4.13	4.18	4.22	4.27	4.31	4.36	4.41
52	4.13	4.17	4.22	4.26	4.31	4.36	4.40	4.45	4.50
53	4.21	4.26	4.30	4.35	4.40	4.45	4.50	4.55	4.61
54	4.30	4.35	4.39	4.44	4.50	4.55	4.60	4.65	4.71
55	4.39	4.44	4.49	4.54	4.60	4.65	4.71	4.77	4.83
56	4.48	4.54	4.59	4.65	4.71	4.76	4.82	4.89	4.95
57	4.58	4.64	4.70	4.76	4.82	4.88	4.94	5.01	5.07
58	4.69	4.75	4.81	4.87	4.94	5.00	5.07	5.14	5.20
59	4.80	4.86	4.92	4.99	5.06	5.13	5.20	5.27	5.34
60	4.91	4.98	5.05	5.12	5.19	5.26	5.34	5.41	5.49
61	5.03	5.11	5.18	5.25	5.33	5.41	5.49	5.57	5.65
62	5.16	5.24	5.32	5.39	5.47	5.56	5.64	5.72	5.81
63	5.30	5.38	5.46	5.54	5.63	5.72	5.80	5.89	5.98
64	5.44	5.52	5.61	5.70	5.79	5.88	5.98	6.07	6.17
65	5.59	5.68	5.77	5.87	5.96	6.06	6.16	6.26	6.34
66	5.75	5.85	5.94	6.04	6.15	6.25	6.35	6.46	6.57
67	5.92	6.02	6.13	6.23	6.34	6.45	6.56	6.67	6.79
68	6.10	6.21	6.32	6.43	6.54	6.66	6.78	6.90	7.02
69	6.29	6.40	6.52	6.64	6.76	6.88	7.01	7.13	7.26
70	6.49	6.61	6.73	6.86	6.98	7.12	7.25	7.39	7.52

¹ Based on 1937 Standard Annuity Mortality Table, with a $2\frac{1}{2}$ percent interest rate. Under this type of joint-life annuity the monthly payments shown are paid while both male and female are alive. After one dies the other is paid only two-thirds of the amounts shown.

General formula:

x = age of male

y = age of female

R = monthly payment while both are alive

$\frac{2R}{3}$ = monthly payment to survivor

" N " defined as "bar N " or $D_x + D_{x+1} + \dots$ to end of table

$$R = \frac{83.33333}{\frac{2}{3} \left[\frac{N_{x+1}}{D_x} + \frac{N_{y-1}}{D_{y-5}} \right] - \frac{1}{3} (a_{x:y-5}) + .54578}$$

The age of a single life corresponding to two joint lives may be obtained from actuarial tables. For example if male is aged 69 and female aged 64, there is a difference of 10 years in the ages at which the calculations are made. For a 10-year difference, 5.050 years may be added to the older age and the joint-life calculation (represented by the symbol " $a_{x:y-5}$ ") thus adjusted may be treated as a single life.

Calculation for male aged 69 and female aged 64:

The female age is considered as 59 in the calculations.

$$\begin{aligned}
 R &= \frac{83.333333}{\frac{2}{3} \left[\frac{N_{70}}{D_{69}} + \frac{N_{60}}{D_{59}} \right] - \frac{1}{3} \left[\frac{.95N_{75}}{D_{74}} + \frac{.05N_{76}}{D_{75}} \right] + .54578} \\
 &= \frac{83.333333}{\frac{2}{3} \left[\frac{1,036,265.5}{109,328.5} + \frac{2,452,393.8}{182,696.6} \right] - \frac{1}{3} \left[\frac{.95(589,010.48)}{76,665.16} + \frac{.05(518,416.26)}{70,594.22} \right] + .54578} \\
 &= \frac{83.333333}{\frac{2}{3} (9.47846 + 13.42331) - \frac{1}{3} (7.29875 + .36718) + .54578} \\
 &= \frac{83.333333}{13.25832} = \$6.29
 \end{aligned}$$

If both parents are living, table 2 may be used to find the "joint life and $\frac{2}{3}$ survivorship" annuity that might be purchased with \$1,000 at stated ages. Under these annuities the monthly payment that is made while both parents are living is reduced to $\frac{2}{3}$ of the former payment when one parent dies. The two-thirds payment of course continues until the death of the last survivor. Since it costs more for both parents to live than one, this type of annuity more nearly fits the needs of the parents than a straight joint life and survivorship annuity, under which the same amount is paid to the surviving parent as to both parents. Under the latter plan, the monthly payment while both parents are living would be less than under the $\frac{2}{3}$ survivorship plan which is proposed and upon which table 2 is based.

After deducting the present value of the future annuity income from the appraised value of the farm, the remainder would be the residual estate. As the *third*, and last, step, the residual estate is divided among the children. If the division is to be equal, the purchasing son would deduct his own share and arrange to pay the other children their shares. His payments to them might be amortized over a selected period at an agreed interest rate. Notes or junior liens might be used to secure payment of these debts.

Example

An illustration will bring together the various steps and also illustrate the use of the tables.

Suppose that the appraised normal agricultural value of the

TABLE 3. PERIODICAL PAYMENT OF ANNUITY WHOSE PRESENT VALUE IS \$1

Period of amortiza- tion	Rates of interest				
	2½ percent	3 percent	3½ percent	4 percent	4½ percent
Years					
1	1.02500000	1.03000000	1.03500000	1.04000000	1.04500000
2	.51882716	.52261084	.52640049	.53019608	.53399756
3	.35013717	.35353036	.35693418	.36034854	.36377336
4	.26581788	.26902705	.27225114	.27549005	.27874365
5	.21524686	.21835457	.22148137	.22462711	.22779164
6	.18154997	.18459750	.18766821	.19076190	.19387839
7	.15749543	.16050635	.16354449	.16660961	.16970147
8	.13946735	.14245639	.14547665	.14852783	.15160965
9	.12545689	.12843386	.13144601	.13449299	.13757447
10	.11425876	.11723051	.12024137	.12329094	.12637882
11	.10510596	.10807745	.11109197	.11414904	.11724818
12	.09748713	.10046209	.10348395	.10655217	.10966619
13	.09104827	.09402954	.09706157	.10014373	.10327535
14	.08553653	.08852634	.09157073	.09466897	.09782032
15	.08076646	.08376658	.08682507	.08994110	.09311381
16	.07659899	.07961085	.08268483	.08582000	.08901537
17	.07292777	.07595253	.07904313	.08219852	.08541758
18	.06967008	.07270870	.07581684	.07899333	.08223690
19	.06676062	.06981388	.07294033	.07613862	.07940734
20	.06414713	.06721571	.07036108	.07358175	.07687614

Formula:

R = Fixed annual payment, which includes interest and reduction of principal.

i = Annual interest rate, expressed as a decimal fraction.

n = Period of amortization in years.

$$R = \frac{i}{1 - (1+i)^{-n}} = \frac{i(1+i)^n}{(1+i)^n - 1} \dots \text{per \$1 of debt.}$$

Determination of annual payment required to amortize a \$1,676 debt over 10 years if interest is at 4 percent:

$$R = 1,676 \times .12329094 = \$206.64$$

farm, with all its buildings and equipment, is \$15,000. Let the age of the father be 64 and age of the mother be 61. Suppose, further, that there are 3 children, 1 a son.

Now let us suppose that the parents agree that they can live on \$72 a month or its equivalent, part in produce from the farm, and that $\frac{2}{3}$ of this amount, or \$48 a month, will be sufficient for one after the other is gone. Of these amounts, let us assume that \$63 a month will be needed for living, expenses and \$9 a month for rent, while both parents are living, and that after one is gone the other will need only \$42 for living expenses and \$6 for rent.

If we divide the \$72 by \$5.61 (found in table 2 opposite age 64 and in the column applying to male aged 3 years older than the female) and multiply the result by \$1,000, we find that such payments would require a \$12,834 principal.

If only the mother (aged 61) were living, we would use table 1 (based on single lives) to arrive at the present value of an annuity of \$48 a month. For a female aged 61, \$1,000 would buy a life annuity of \$5.48 a month. Dividing \$48 by \$5.48 and multiplying by \$1,000, we find that the present value of such payments is \$8,759.

Returning now to our joint-life calculations, we deduct the \$12,834 from the \$15,000 appraised farm value and have left an equity of \$2,166 to be divided among *all* the children, including the son who purchases the farm.

If the residue (estate) is to be divided equally among the three children, each child is entitled to \$722. The son who purchases the farm could pay \$722 to each of the other two children in periodic instalments. Table 3 shows the periodical payment of an annuity certain of which the present value is \$1, using various terms and several interest rates.

In the illustration, if the children agree on a 10-year amortization period and a 4 percent interest rate, we multiply \$722 by .12329094 (found opposite 10 in the 4 percent column of table 3), and find that the son who purchases the farm would have to pay *each* of the other two children \$89.02 at the end of each year for 10 years before his debt to them—incurred when he takes over their equities in the estate—is extinguished.

The main point here is that the farm has been sold to one son and that there is a residual estate which is to be divided equally among *all* the children. The purchasing son must, therefore, pay off the other two children before he can claim full ownership to the farm. These payments to the other children, as calculated, must be considered as payments certain—to be made to their estates even though they die in the meantime—and not payments subject to a life contingency. Open notes or junior liens could be given to secure payments of these debts.

Under the arrangement, the purchasing son would pay the parents \$72 per month, and they—in turn—could pay him \$9 a month for the use of the rooms or separate dwelling to be occupied by them. Or the son might pay them only the difference, or \$63 per month. This rental arrangement between father and son would not

preclude the parents from moving elsewhere if they wished. If they did, the son would merely increase his payments from \$63 to \$72 a month.

The rent in the illustration has been placed on a " $\frac{2}{3}$ survivorship" basis so that another use can be made of table 2.¹⁰ Suppose that the parents desire to settle once and for all the matter of rent, since they always intend to remain on the farm. It is possible to use table 2 to commute the value of any services or facilities that are to be retained by the parents during their lifetime, for example rooms in the main dwelling or use of a separate building.

We previously found that—at the specified ages of the parents—\$1,000 would buy a monthly income of \$5.61 during their joint lives and \$3.74 for the survivor from then on during his (or her) remaining lifetime. Dividing the \$9 monthly rent by \$5.61 (or \$6 by \$3.74) and multiplying the result by \$1,000, we find that the present value of the future rental credits to the son is \$1,604—taking into consideration life contingencies. This amount might be thought of as an offsetting entry against the value of the farm. In accounting terminology it would be considered as a credit entry in a "T" account in which the farm's appraised value was entered as a debit.

If only one parent is living, table 1 (which is based on a single life) would be used to arrive at the present value of the future rental credits. Let us assume that only the father is living. We find that, on the average, future payments of \$6.97 per month, to be made during the lifetime of a male aged 64, would be worth \$1,000 now, if interest is calculated at $2\frac{1}{2}$ percent. Dividing \$6 (the rent for one parent) by this \$6.97, and multiplying the result by \$1,000, we find that \$861 would be the present value of the rent on rooms to be occupied by this parent.

Returning again to our joint-life calculations, if the \$1,604—as the present value of future rental credits of \$9 a month from both parents and \$6 a month from the survivor—is deducted from the \$12,834, which was determined to be the present value of the annuity computed on the basis of \$72 a month, there would be \$11,230 left to purchase a lesser monthly income. Referring to table 2, we find that this sum would buy \$63 a month for the joint lives (and \$42 a month for the survivor), which is the same figure that was obtained above after the \$9 rent is deducted from the

¹⁰ The assumption might be that fewer rooms are required for one than for both parents.

monthly income of \$72, which included the rent, computed on the basis of a purchase price of \$12,834.

Once settled in this manner, there would be no further consideration of the rent item. The son would merely pay the \$63 (later, \$42) a month to the parents. The parents could take part payment of the guaranteed monthly income in farm produce. A scale of prices to be used in computing commodity equivalents—for example, eggs at so much per dozen—would help prevent misunderstanding and would assure the old folks a more or less fixed level of living.

After determining the value of the farm and deducting the present value of a designated future income and the imputed value of the facilities to be retained by the parents during their lifetime, if there is nothing left as a residual estate, there is no inheritance to be divided.¹¹ The net worth of the parents was too small or their periodic income was set too high. In effect there may have been merely a sale by father to son—perhaps at too high a price. Under such circumstances there might even be some additional savings to be divided ultimately among the children. If the inheritance is decided upon first and is placed at too high a figure in relation to net worth, there may not be enough left (as the present value of a joint-life annuity) to provide a liveable future income for the parents, in which case the farm may have been sold to the son at too low a price. The parents may then become a burden to the son who purchases the farm, and in assuming this burden he would be making up somewhat for the previous miscalculation.

It must have occurred to the reader that after the appraised value of the farm and the present value of the facilities to be retained by the parents have been determined, there is an inverse relationship between (1) the equity to be divided and (2) the purchase price of the farm or present value of the joint-life annuity. Increasing one decreases the other. Furthermore, the total debt owed by the purchasing son on the date of transfer of the farm, i.e., that to the parents in the form of future income commitments plus that to the other children as their shares of the residual estate, might be expressed in symbols as follows, assuming that the residual estate is to be divided equally among all the children.

¹¹ If the present value of future rental credits is not handled as a separate item, it may be considered as zero in the following discussion.

$$T = A + \frac{(n-1)}{n} (V - W - A)$$

where

T = Total debt owed by purchasing son

n = Total number of children

A = Present value of joint-life annuity

n = Total number of children

V = Appraised value of farm

W = Present value of facilities to be withheld by parents

and $V - W - A$ = Residual estate.

In the illustration, the purchasing son would owe, at date of transfer of the farm, \$14,278. His payments to the parents would amount to \$72 per month or \$864 a year, and his payments to the other two children would amount to \$178 a year. His total annual payments in the immediate future will therefore be \$1,042. A variable payment arrangement between father and son may prove advisable in some instances. If the son's obligations are heavy, he would want some leeway in meeting fixed expenses when farm income is low. At such times the living expenses of the parents will probably be less, so that a variable-payment scheme would fit into the annuity plan very well.

Advantages

In transferring the farm from father to son as a going concern, the capacity of the farm to produce is uninterrupted. The farm continues to produce for the parents as before, except that the constant income received is derived from interest earned—2½ per cent as computed—and a gradual depletion of the capital investment itself. The interest portion is large at first and grows smaller; while the capital depletion is small at first and grows larger. Added together they always remain the same.

The judgment of the father, gained through years of experience on the farm, is valuable to the son whose interests have been bolstered by ownership. The security value of the farm as a going concern is normally greater than its salvage value at an auction sale in order to "clean up" the estate. The difference is kept within the family and the security behind the mortgage which the parents

take on the farm (to secure payment of the annuity by the son) is maintained.

There are also direct financial gains to the family when the parents set up life estates which assure continuity of the family on the farm. When a farm is sold at auction in order for the estate to be divided among the children, a commission of 5 to 10 percent must be paid. Furthermore, there may be some savings in probate administration costs by settling the estate while the parents are alive.

The proposed plan would put the care of the parents on a more businesslike basis, and, if fairness has been followed, make the burden of this care more equitable among the children. The feeling of independence which a definite monthly income arrangement gives the parents should not be overlooked. They must be cared for anyway, and while there is in effect an early division of the family capital, due to the application of the annuity principle, the parents are not required to measure their future independence against a yardstick of diminishing capital.

Disadvantages

In dealing with many lives, an insurance company can—with precision—calculate the single premium required to guarantee lifetime payments of a selected amount to an annuitant. It has the advantage of the “law of large numbers.” It can use the sums left by those who die early to pay those who live to ripe old age. In assuming the function of an insurance carrier, the son would be accepting the responsibility of lifetime payments to parents, one or both of whom might live far beyond their life expectancies. If they live long, the monthly payments would have to be continued equally long. If they die early, the other children might consider that they had been disinherited. This feeling would not, however, be justified. The responsibility of the purchasing son, in guaranteeing a lifetime income to the parents, should be fully understood at the start by all heirs.

It may have occurred to the reader that if the parents' annuity were of the instalment-refund type, in the case of their early death the other children would have something coming to them from the purchasing son. While this is true, refund annuities are seldom used in connection with older lives because of the effect of the mortality factor in reducing the amount of the monthly instalments. If there

is to be a refund of the remaining purchase price if death occurs before a specified guarantee period (usually 10 years) has expired, the chances of such a refund are much greater at the older than the younger ages. For a male aged 64, for example, the life expectancy is only 15 years, according to the 1937 Standard Annuitants Mortality Table. If monthly payments were guaranteed for 10 years, they must necessarily be much smaller at that age than if the annuity were without refund in case of early death. Usually the farm value would not be sufficient to provide a liveable income at the older ages under the refund type of annuity. For that reason, tables showing the monthly income that can be purchased with a \$1,000 payment at different ages under a refund guarantee have not been included.

Although the annuity plan does not require the parents to live with or close by the son and his family, doubtless such an arrangement would fit into most retirement plans either (1) because the annuity income will not be enough to permit the parents to pay a going rental price or (2) because they want to remain on the farm. In either case, there is always the possibility of friction later on. In placing all dealings on a businesslike basis at the start, some of these misunderstandings may be avoided.

MALADJUSTMENTS IN THE WOOL INDUSTRY AND NEED FOR NEW POLICY

CHARLES D. HYSON
Harvard University

BETWEEN the two world wars, *world* production and consumption of wool were kept in fairly close balance by relatively free movements in wool prices, but during World War II, the close alignment between supply and demand was disrupted, and as a consequence a five billion pound, grease basis, world stock pile of apparel wool, three times the normal prewar carry-over, existed at the beginning of the 1946-47 export season. The orderly liquidation of such a huge carry-over of wool has presented a problem in the principal wool-producing and wool-consuming countries of the world.

To discuss the specific international problems arising from the large world wool surplus, and investigate possible methods of international cooperation to market wool, representatives of the principal wool-producing and consuming countries met in London on November 11-16, 1946. At this conference it was agreed that price stability of wool was essential to any program designed to expand world consumption of wool. The conference recommended the formation of an inter-governmental group to study production and marketing problems of the wool industry.

Shortly after the new Congress convened, several bills were introduced providing for a continuation of price-supports for domestic raw wool. Hearings on the Administration's tariff program before the inter-departmental Committee on Reciprocity Information were opened in Washington on January 13, 1947. The round of trade agreement negotiations involving tariff concessions on over one thousand different items, including raw materials and manufactured products, presents opportunities for realignment of foreign and domestic trade policies towards reciprocity and freer trade among eighteen nations participating in the tariff conference. These hearings were merely preparatory to negotiations which began in Geneva in April 1947, for "group bargaining" on international tariff concessions, to complete the draft of a charter establishing common principles of world trade policy, and to set up an International Trade Organization.¹ Proposals to consider possible tariff

¹ See *Charter for the International Trade Organization of the United Nations* (pre-

concessions on raw wool and wool manufactures are included in the program.²

Congress should reconsider the advisability for continued governmental participation in the marketing of wool and other essential commodities. The question of whether our present domestic trade policy would be compatible with our announced aims regarding foreign trade policy should be clarified. The maladjustments in the wool industry are an integral part of the whole commodity marketing problem.

The raw apparel wool market has been characterized by surplus stocks, heavy demand and rising prices—a paradoxical situation which may result in serious consequences for the wool textile industry and ultimately for the wool grower.

It is the principal intent of this paper to present some of the factors involved in appraising the domestic raw wool marketing situation (and incidentally in the foreign wool industry as it affects the domestic situation) as background which must be considered in formulating a farsighted commodity marketing policy designed to achieve a normal balance between raw wool production and consumption, and attaining price stability in the wool industry.

I. U. S. Mill Consumption, Carry-over, and Imports

Mill consumption of apparel wool³ in the United States during 1941-46 averaged over one billion pounds per year, grease basis,

liminary draft (of articles devised by the Preparatory Committee of the International Conference on Trade and Employment, London, October 15 to November 26, 1946). Department of State, December 1946. Also, *Report of the Drafting Committee of the Preparatory Committee of the United Nations Conference on Trade and Employment*, United Nations: Economic and Social Council, Lake Success, New York (January 20 to February 25, 1947).

² See U. S. Tariff Commission, *Wool and Manufactures*, Trade Agreement Digests, Vol. XI, November 1946, Washington, D.C.

³ Raw wool may be segregated into two broad categories—apparel wool and carpet wool. This paper is primarily concerned with apparel wool from which most worsted and woolen clothing is made. Marketing of apparel wool begins with sale by growers to local dealers, buyers for large central markets, merchants or cooperative organizations. Raw wool at all stages is generally sold on a grease basis, as it comes off the sheep. Such wool contains animal grease, dirt, briars and other foreign matter which comprises on the average about 55 percent of the gross weight. Removal of these foreign materials results in considerable shrinkage and gives a produce known as “scoured” wool. Prices for wool still “in the grease” are quoted on a scoured basis and involve an estimate of the quantity of shrinkage which will develop in the scouring process. Sales are made for cash when the wool is sold at shearing time, or on consignment to a central market agency, or by contract made prior to the shearing season. Most wool eventually arrives at one of the four large central markets—Boston, Chicago, St. Louis, or Philadelphia—where it passes into the hands of the large wool merchants who grade, store, and finally sell it. Boston is the most important of these markets.

compared with an average of 592 million pounds over the period 1935-39. Mill consumption of apparel wool for the year 1946 reached a near record high of 1,070 million pounds, grease basis, 80 percent higher than the prewar rate of consumption (Table I, Chart I).⁴ Foreign wools comprised 78 percent of United States mill con-

APPAREL WOOL IN THE UNITED STATES

AVERAGE 1935-39, ANNUAL 1940-46

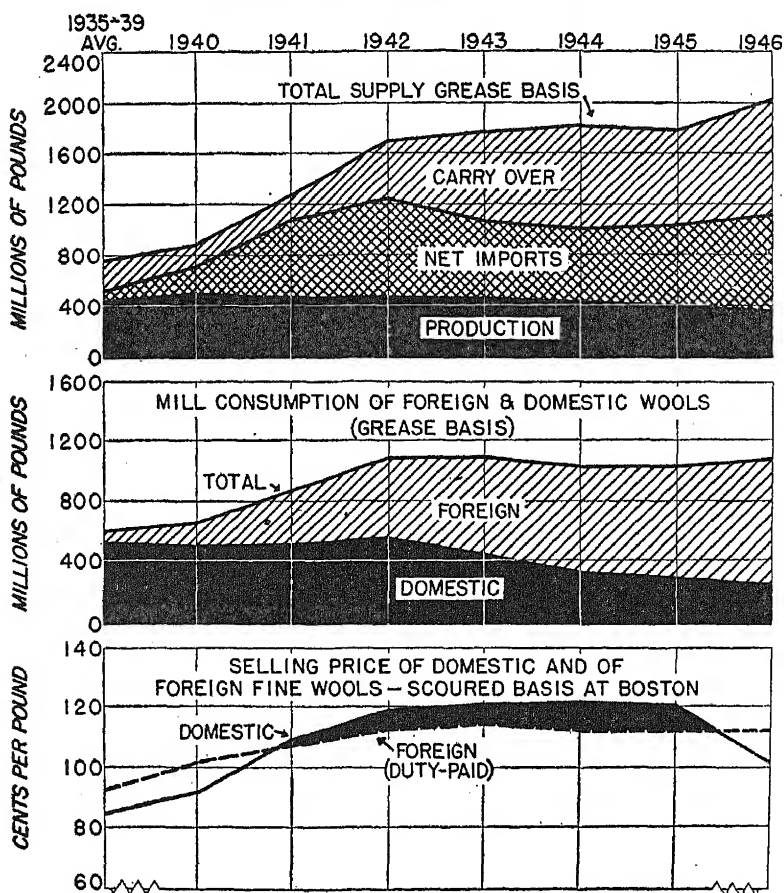


CHART I

⁴ Consumption of apparel wool by mills in the United States attained a new record high of 620 million pounds, *scoured basis* in 1946—more than double the 1935-39 average of 281 million pounds (Table V).

sumption in 1946,⁵ compared with 14 percent of mill consumption during the prewar period. Mill consumption of domestic wool was smaller in 1946 than in any year since 1918 when records were first kept.

Total stocks of domestic and foreign apparel wool held by mills

TABLE I. APPAREL WOOL IN THE UNITED STATES: PRODUCTION,¹ NET IMPORTS, CARRY-OVER, MILL CONSUMPTION OF DOMESTIC AND FOREIGN WOOLS, AND SELLING PRICES OF DOMESTIC AND FOREIGN FINE WOOLS AT BOSTON, AVERAGE 1935-39, ANNUAL 1940-46

Years	Supply			Mill Consumption			Selling Price		
	Production ¹	Net imports ²	Carry-over ³	Domestic	Foreign	Total	Domestic ⁷	Foreign ⁸ (Excluding duty)	(Duty paid)
	Million pounds, grease basis			Million pounds, grease basis			Cents per pound, scoured		
Avg. 1935-39	424	86	256.4	509 ⁹	85	592 ⁹	84	59	93
1940	434	223	177.8	487	154	641	92	68	102
1941	453	614	193.8	494	483	977	103	73	107
1942	455	731 ⁴	447.4	541	537 ⁶	1077	119	79	113
1943	444	612 ⁴	702.3	430	631 ⁵	1061	120	80	114
1944	412	575 ⁴	815.5	319	690 ⁵	1009	121	77	111
1945	378	652 ⁴	749.2	252	761 ⁵	1013	120	77	111
1946	341	807	797.0	240 ⁹	830 ⁹	1070 ⁹	103	79	113

¹ Greasy weight of wool as shorn and pulled from domestic fleeces in the United States.

² Imports in actual weight but are chiefly grease wool. Net imports are imports for consumption minus domestic exports.

³ Reported stocks, January 1. Stocks reported by mills and dealers and by United States Government. Does not include wool on farms and ranches; farm stocks normally would be small on January 1.

⁴ Excludes wool entered as an act of international courtesy for storage and re-export for the British Government.

⁵ Original data for 1935-39 were revised upward on basis of revised scoured basis wool. Data published by Bureau of Census.

⁶ Beginning with 1942, all duty-paid foreign wools, whether apparel or carpet class, are classified as apparel wool, and all duty-free foreign wools are classified as carpet wools in Bureau of Census mill consumption reports.

⁷ Territory, staple, fine and fine medium.

⁸ Australian 64s, 70s, good topmaking.

⁹ Preliminary.

Sources: U. S. Department of Agriculture, Bureau of Agricultural Economics. National Association of Wool Manufacturers.

and dealers and by the Commodity Credit Corporation in the United States on January 1, 1947, were 895 million pounds, grease basis, or more than three times the size of the 1935-39 average carry-over. Mills and dealers held 415 million pounds of apparel wool at the beginning of 1947, of which 255 million pounds were foreign wool. These stocks were about 65 million pounds larger than a year earlier, and about 62 percent higher than the average prewar inventories of mills and dealers. CCC stocks (embracing clips for the years 1943-46) totaled 480 million pounds, grease basis, on January 1, 1947. These stocks were considerably smaller

⁵ Foreign wools totaled 85 percent of U. S. mill consumption in the first half of 1946.

than in mid-1946 because of increased sales to mills during the last half of the year.

Stocks of domestic and foreign apparel wool held by mills, dealers, and by the CCC on January 1, 1946, amounted to 798 million pounds, grease basis, and were equivalent to about 75 percent of consumption for the year; whereas in 1935-39 the available carry-over was equivalent to about 43 percent of the annual consumption in these years (Table II).

TABLE II. CARRY-OVER¹ OF APPAREL WOOL AND PERCENTAGE SUCH STOCKS ARE OF ANNUAL MILL CONSUMPTION, GREASE BASIS, UNITED STATES, AVERAGE 1935-39, ANNUAL 1940-47

Years	Owned by dealers and mills		Owned by U. S. Government		Total reported	Mill consumption	Stocks as percentage of consumption ³
	Domestic wool	Foreign wool ²	Domestic wool (C.C.C.)	Foreign wool (D.S.C.)			
	Million pounds		Million pounds		Million pounds		Per cent
Avg. 1935-39	220.5	85.9			256.4	592.0	43.3
1940	125.5	51.8			177.3	640.9	27.7
1941	122.0	71.8			193.8	977.1	19.8
1942	170.2	120.2		157.0	447.4	1077.2	41.5
1943	203.8	184.7		308.8	702.3	1061.4	66.2
1944	102.5	205.6	182.0	325.4	815.5	1009.0	80.8
1945	94.5	229.1	311.8	113.8	749.2	1012.8	74.0
1946	69.4	279.4	449.1		797.9	1070.6 ⁴	74.6
(July 1 Est.)							
1946	113.0	319.0	499.0 ⁵		931.0 ⁵		
1947 ⁶	160.0	255.0	480.0		895.0		

¹ Reported stocks January 1. Stocks reported by mills and dealers and by U. S. Government. Does not include wool on farms and ranches; farm stocks normally would be small on January 1.

² Includes wool in bonded warehouses which has not yet been reported in imports for consumption.

³ Carry-over January 1 as percentage of calendar year consumption.

⁴ Preliminary.

⁵ Incomplete, includes only part of 1946 production, much of which had not been offered to CCC for purchase.

Sources: U. S. Department of Agriculture, Bureau of Agricultural Economics. Based on data from the Bureau of the Census and the Defense Supplies Corporation.

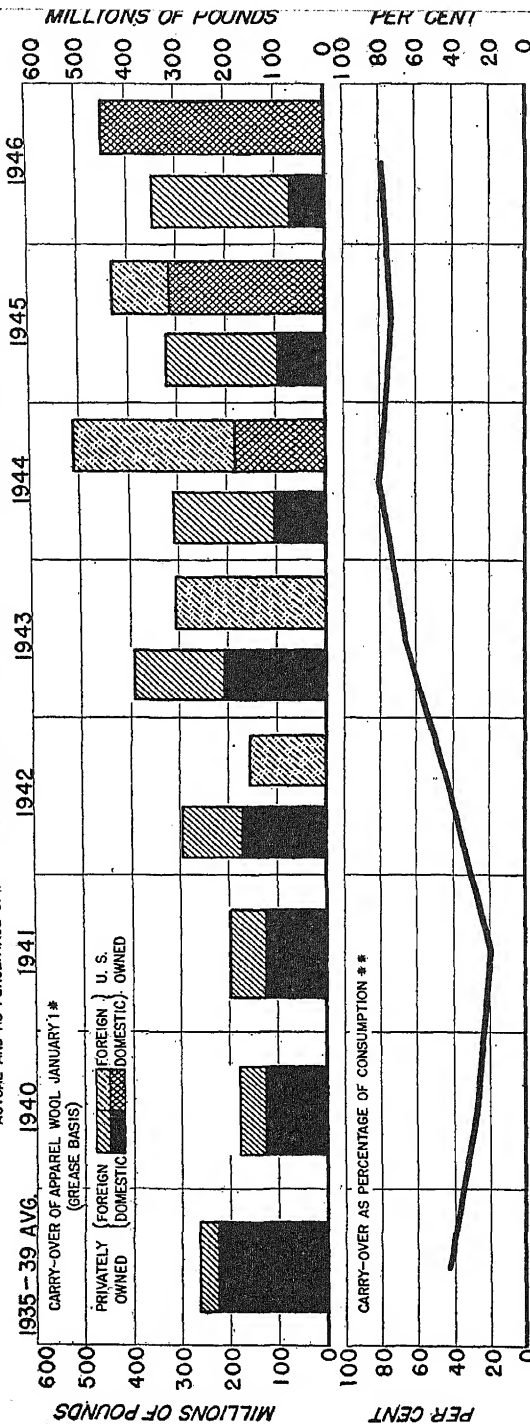
While Government holdings of foreign wools were liquidated in 1945-46, holdings by private handlers increased because of the shift in foreign stocks from Government to private hands during 1945-46 (Table II, Chart II).

The annual rate of imports of apparel wool since the end of 1944 has been at levels exceeding any previous 12-month period except that of 1942, when our stock pile of foreign wool was built up (Table I). Heavy mill consumption, the reluctance of mills to use higher priced domestic wools, and the prior liquidation of the foreign wool stock pile, largely accounted for these imports. Reflecting the large purchases at "issue" prices⁶ by U. S. buyers in the 1945-

⁶ The "issue" price was that price at which any grade or type of wool was freely offered for sale by the British Wool Control (or Joint Organization).

CARRY-OVER OF APPAREL WOOL JANUARY 1:

ACTUAL AND AS PERCENTAGE OF ANNUAL MILL CONSUMPTION UNITED STATES AVERAGE 1935-39, ANNUAL 1940-46



* DOES NOT INCLUDE WOOL ON FARMS.
 ** CARRY-OVER JANUARY 1 AS PERCENTAGE OF CALENDAR-YEAR CONSUMPTION.
 SOURCE: U. S. DEPT. OF AGRICULTURE.

CHART II

46 season from the British Wool Control (replaced by the Joint Organization) in expectation of price increases at the opening of the new season on July 1, 1946, and the resumption of auctions in September, net imports of dutiable wool in 1946 reached a record high, estimated at 807 million pounds, grease basis, compared with 652 million pounds in 1945 and an annual rate of 86 million pounds during 1935-39. Imports declined in the final quarter of 1946 from the exceptionally high rate of the initial nine months of the year. Net imports of apparel wool have been higher than domestic production each year since 1941 (when they were 35 percent above production), and were 137 percent above production in 1946. Net imports in the years 1935-39 totaled only 20 percent of the domestic wool production (Table I, Chart I).

II. U. S. Sheep Population, Production, and Tariff Policy

The number of stock sheep on farms declined 34 percent within the previous five years and is the lowest on record dating from 1867, despite an increase of \$2.63 per head of stock sheep since January 1946, bringing the average value per head to \$12.20 on January 1, 1947, the highest ever recorded. Total sheep population is the lowest since 1925. Reduction in numbers of sheep has occurred in all geographic regions, ranging from a decrease of 43 percent from the 1942 level in the North Central States to 21 percent in the South Central States which include Texas.⁷

The decrease in sheep population since 1942 is largely attributable to more attractive prices (including subsidy payments) in enterprises competitive to sheep (especially beef cattle),⁸ increases in costs of sheep raising (particularly for labor which accounts for a high proportion of the cash costs), and the uncertainty of future prices for wool, as surplus stocks existed in the United States and abroad so that some price decline was probably expected if support-prices were discontinued. A subsidiary factor, however, contribu-

⁷ All classes of sheep declined during 1946. Ewes one year old and over, estimated at 25,340,000 declined over 8 percent and on January 1, 1947, were about 32 percent or 12,000,000 head below the total at the beginning of 1942. Ewe lambs held for replacement declined 450,000 head and were about 17 percent of the number of ewes one year old and over. This percentage is the lowest in over twenty years, except for 1945, and not adequate to check the decline in breeding ewe numbers. U. S. Dept. of Agriculture, Crop Reporting Board, *Livestock on Farms January 1, February 18, 1947*. (Washington, D. C.)

⁸ Beef cattle prices and the average prices of all farm products increased more during the war (i.e. from December 1941 to August 1945) than prices of lambs or wool.

ting to the decline in sheep numbers was the high average price for sheep and lamb. Cash receipts from the sale of sheep and lambs in 1946 were the highest on record, primarily because of high lamb prices.

During the period 1943-46, the CCC wool purchase program stabilized prices to producers at an average level of 42 cents a pound, 75 percent above the prewar level, the highest prices since May 1920. However, cash receipts for shorn wool in 1946 were only

TABLE III. STOCK SHEEP ON FARMS JANUARY 1, WEIGHT PER FLEECE, WOOL PRODUCTION, ACTUAL PRICES, PARITY PRICE, PARITY RATIO FOR WOOL AND FOR ALL FARM PRODUCTS, CASH FARM INCOME FROM SALES OF WOOL, AND PRICES RECEIVED BY FARMERS FOR WOOL AND FOR ALL FARM PRODUCTS, UNITED STATES, AVERAGE 1935-39, ANNUAL 1939-47

Years	Stock sheep on farms Jan. 1	Weight per fleece	Wool production ¹	Price received by farmers	Parity price for wool	Farm price of wool as percentage parity ²	Parity ratio for all farm products ³	Cash farm income for wool	Prices received by farmers (1935-39 = 100)	
									Wool	All farm products
	Mil-lions	Pounds	Mil-lion pounds	Cents per pound	Cents per pound	Per cent	Per cent	Mil-lion dollars	Per cent	Per cent
Avg. 1935-39	46	8.0	424	23.9	23.4	102.2	84	85.6	100	100
1939	46	8.0	426	22.3	22.7	98.2	77	80.7	96	88
1940	46	8.0	434	28.4	22.9	124.0	80	105.5	119	93
1941	47	8.1	453	35.5	24.2	146.7	94	137.8	147	115
1942	49	7.9	455	40.1	27.4	146.4	106	155.7	166	148
1943	48	7.9	444	41.7	29.6	140.9	119	157.8	172	179
1944	44	7.8	412	42.4	31.1	136.3	115	143.5	174	182
1945	40	7.9	478	41.9	31.8	131.8	116	129.1	171	188
1946	56	8.0	341	42.3	35.4	119.5	120	118.4	175 ³	216 ³
1947 ⁴	33									
January				40.6	39.3	103.0	121			
February				40.3	40.4	99.8	119			

¹ Greasy weight of wool as shorn and pulled from domestic fleeces in the United States.

² Average base period prices, August 1909-July 1914=100.

³ Preliminary.

Notes: The revised estimates of sheep numbers and wool production for the years 1940-46, shown above, are generally lower than previous estimates for these years. See *The Wool Situation*, March 1947. Source: U. S. Department of Agriculture, Bureau of Agricultural Economics.

\$118 million, the smallest since 1940, due to a decline in production estimated at 341 million pounds, grease basis, 24 percent below the 1943 record and the smallest clip since 1925 (Table III).³ Annual domestic production of shorn and pulled wool in 1935-39 averaged 425 million pounds, grease basis, approximately 70 percent of the average yearly total consumption in the United States (Table I). The remainder of our domestic requirements during those years was

³ Sheep and lambs on feed on January 1, 1947, were 6,029,000 head compared with 6,807,000 a year previous. The total value of all sheep amounted to \$487 million, \$76 million above January 1, 1946, but below the value on January 1, 1943. *Livestock on Farms January 1, op. cit.*

made up of imports from Australia, Uruguay, New Zealand, the United Kingdom, and South Africa.

The changing volume of wool production in the United States has been influenced not only by the price of wool but also by the prices of sheep and lambs sold for meat. United States tariff policy regarding apparel wool and wool manufactures and the Government action relating to wool have been important in influencing other changes in domestic wool production.¹⁰ Except for two periods of effectiveness under the Tariff Acts of 1894 and 1913, the domestic production of raw wool has had considerable tariff protection since 1867.¹¹ The Tariff Act of 1913 exempted wool from duty, but the Emergency Tariff Act of 1921 restored wool to dutiable status and the Tariff Act of 1922 placed a duty of 31 cents a pound, scoured basis, on fine imported wool, which was subsequently raised to 34 cents a pound under the Smoot-Hawley Tariff Act of 1930. These rates, substantially above those in effect before 1913, encouraged the increase of domestic production to relatively high levels during the Thirties. Throughout most of the interwar period the tariff had the effect of increasing the prices of domestic wools above free world prices by the full amount of the duties, even before making allowances for the preparation differential. The influence of other policies of the Government after 1939 superseded the effects of the tariff on the price spread between domestic and foreign apparel wools.

III. U. S. Prices

Prices of domestic wool (territory, staple, fine and fine medium, scoured basis) at Boston in October 1946 averaged 50 percent above the level of August 1939, the month before war broke out in Europe. Average prices for this type of wool in October 1946 were about 12 percent below the wartime high of \$1.20-\$1.21 a pound, which prevailed throughout 1944, 1945, and in March 1947. Between August and October 1939 prices for domestic wool (territory,

¹⁰ Moreover, the domestic prices of wool and of sheep and lambs have been influenced by the tariff treatment of them as well as by the tariff treatment and United States supplies of meats competing with lamb and mutton. Refer to *U. S. Tariff Commission Report on Raw Wool* (December 1943). Also, *U. S. Tariff Commission Report on Estimated Costs of Production of Wool, Sheep, and Lambs in 1944 Compared with Costs in 1940-43*. (January 1945).

¹¹ Duties on raw wool have been part of every tariff act since 1816 with few exceptions such as the Acts of 1894 and 1913. The tariff on raw wool is one of the oldest and most effective of duties on agricultural commodities. See Haldor R. Mohat, *The Tariff on Wool*, Tariff Research Committee, Madison, Wisconsin (1935).

staple, fine and fine medium, scoured basis) at Boston advanced 47 percent to \$1.04 a pound, while the price of Australian wool of comparable grade and quality advanced 35 percent to \$1.12 a pound, duty-paid, during this period. These increases reflected the relatively low domestic stocks (totaling 245 million pounds in August 1939), increased demand for wool caused by the war, and the inauguration of purchases in September 1939 of the entire Australian and New Zealand wool clip by Great Britain for the duration of the war, making imports of this wool and its selling price in the United States subject to decisions of the British Government.

The Army in 1940 began to place large orders for military fabrics and in 1941 took about 50 percent of the average prewar consumption. Manufacturers of worsted goods for the Army were prohibited from using foreign wools.¹² Additional upward pressure was put on domestic wool prices by the rising consumer demand stimulated by increasing purchasing power. When supplies of domestic wools became insufficient to meet requirements the Army permitted manufacturers to use foreign wools in and after November 1940. Imports increased, particularly from South America.¹³ Encouraged by the Government procurement policy, the prices of domestic wools advanced considerably in 1940 and 1942 as compared with duty-paid prices of imported wools.

The domestic supply of apparel wool rose to one billion pounds, grease basis, in 1941 with domestic production at a level of 453 million pounds, grease basis. Ceiling prices for wool were established by the OPA in December 1941, and subsequently revised upward. In effect, the ceiling prices confirmed the price differentials resulting from the Government procurement policy. The CCC procured domestic wool at prices averaging about 31 percent above parity during 1943-46. The average price of domestic wool (territory, staple, fine and fine medium, scoured basis) at Boston in December 1941 was \$1.13 a pound, rose to \$1.20 in March 1942 and remained at

¹² Under the provisions of the Act of 1933 (sometimes called the "Buy American" Act) the use of domestic wools was required if available in grades needed and not unreasonably higher than foreign wools.

¹³ Although substantial shipments from Australia were not as large as the rise in imports from South America, in October 1940, the National Defense Advisory Commission made arrangements with the British Government to store 250 million pounds of Australian wool in the United States as an emergency stock pile. The wool was stored in bond ownership, retained by the British Government, and could be sold on the United States market only when short supplies were found to exist here. About 30 million pounds of British-owned stock pile wool were in this country on January 1, 1947.

this level until April 1944, when the average price increased to \$1.21. This price prevailed until the CCC adjusted its price schedule in November 1945.

IV. *Commodity Credit Corporation Program and Government Policy*

The CCC domestic wool purchase program was initiated in April 1943 in order to support prices to growers. Sale of domestic wool to the CCC was virtually mandatory with few exceptions between April 1943 and August 1945, but after restrictions were removed most of the domestic wool continued to go to the CCC because its price was above the market price. Sales in each season since 1943-44 were considerably below purchases.

The price spread between foreign and domestic wools widened over the period 1941-45. The spread between the Boston price for domestic wool (territory, staple, fine and fine medium) and imported fine top-making Australian wools of comparable grade and quality averaged 43 cents a pound, scoured basis, excluding duty, in 1945, compared with the 1935-39 average price spread of 26 cents a pound (Table I). United States mills have been partial to Australian and other foreign wools because they were graded and classified, of higher quality, ordinarily involved less market risks, and were lower priced.¹⁴

From July to August 1945, United States mill consumption of domestic wool fell from a weekly average of 2.1 to 1.2 million pounds. During this period, United States average weekly mill consumption of foreign wool rose from 7.7 to 8.3 million pounds. By October 1945, the use of domestic wools had dropped to .7 million pounds, whereas the use of foreign wools increased to 9.6 million pounds. Two days after the CCC solicited bids from manufacturers

¹⁴ Foreign wools have commanded a premium usually ranging from 9 to 12 cents a pound, attributable largely to differences in preparation and marketing of domestic and imported wools. Foreign fleeces have usually been "skirted" to remove the less desirable parts and carefully graded into lots normally showing only slight variations in quality. Domestic fleeces are not "skirted" nor so closely graded, and sometimes are not graded. In addition, domestic wools are generally sold soon after shearing and buyers must finance and assume the market risks involved in holding them for periods up to six months or more. Imported wools are ordinarily bought as needed, and the foreign growers or sellers assume the costs and risks of holding them until they are sold. Unlike Australia, South Africa, New Zealand, Uruguay and other countries which have produced sheep mainly for their wool, a considerable proportion of sheep producers in the United States (many having small flocks) probably consider wool as a by-product of mutton. To improve the quality of wool and encourage sorting and culling of flocks, the Government of South Africa instituted a policy of having trained Government wool sorters to grade wool. If the wool failed to meet set standards, the grower was subject to a fine.

(late in October 1945) for 10 percent of the Government's wool stocks, the British Wool Control Board reduced prices from five to 14 percent, thus further stimulating the use of foreign wool.

To encourage the consumption of domestic wool by United States mills and reduce the large Government carry-over of 312 million pounds, grease basis, of domestic wool in 1945, the CCC on November 27, 1945, began selling Government stocks of domestic wool at prices below the price which the CCC had paid the growers. Prior to this date, the CCC selling price was the same as the price to growers. On February 21, 1946, the CCC announced an additional reduction in selling prices not to exceed three cents a pound for 1944-46 wools and five cents a pound for scoured 1943 wools.¹⁵ This new price reduction, coupled with the previous reduction on November 27, 1945, lowered the selling prices for domestic wools about 8½ cents a pound, grease basis, below the prices originally scheduled by the CCC.¹⁶

Because it was claimed that the price to growers could not be maintained owing to competition from wool exporting countries, Senator O'Mahoney of the Senate Agriculture Committee introduced a bill, S. 2033, in April 1946 to provide for permanent wool legislation which would give wool the same benefits accorded to other agricultural commodities under the Steagall Amendment; and that the Government would support the prices of wool at not less than 90 percent of "revised parity" (the so-called "comparable" basis) for two years after the first of January following the official termination of the war. In addition, the bill further provided that thereafter the Government would support the price of wool at not less than 50 nor more than 75 percent of the revised parity price,¹⁷ and that reductions for any one year shall not exceed 8 per cent of

¹⁵ Some recognition was given to the "spot" position of fine domestic wools, however, as these wools were in short supply throughout 1946. Desirable domestic wools readily available in United States warehouses were priced several cents a pound above comparable duty-paid imported wools in order to take advantage of the "spot" position.

¹⁶ *Bulletin of the National Association of Wool Manufacturers*, 1945, pp. 111-13.

¹⁷ The revised parity formula would result in considerably higher parity prices for wool than would the use of the 1909-14 base. The parity price for wool as of Feb. 15, 1947 was 40.4 cents a pound in the grease, as determined by the original concept of parity. But, if calculated according to the revised or "comparable" price formula, the parity price for wool in February would be 50.4 cents a pound. The "comparable" price for wool would be that price which bears the same relation to the average parity prices of the so-called "basic" agricultural commodities (cotton, wheat, corn, tobacco, rice, peanuts) as the actual price for wool bore to the actual average prices of the basic agricultural commodities during the period August 1934 to July 1939.

the average support price for the previous year. The bill specifically provided, however, that *no reduction shall be made in the general level of support-prices from the 1946 level until the decline in sheep numbers is halted, except to correct inequities*. The bill also provided to make the Marketing Agreement Act of 1937 applicable to wool, and to provide for a research and development program for wool. Under this legislation, recommended by President Truman, the prices of domestic wools to United States mills would, regardless of the prices to the growers, be permitted to drop to levels competitive with the duty-paid prices of foreign wools. Financing the cost of such a support-price program (the subsidy representing the difference between the support-price to growers and the competitive price to the mills) would be handled by earmarking the customs revenue.

This bill was strongly opposed by the organized wool trade associations on the ground that it would perpetuate a system of marketing which had failed to market the domestic clip, would continue Government control of the domestic wool industry, and would discourage private initiative in the marketing of domestic wools. The bill was referred for study to the Special Senate Wool Committee, and, after extensive hearings, it was passed by the Senate as an Administration measure, but was caught in the rush to adjourn and was not voted on in the House.¹⁸

Although competition of foreign wools had earlier forced the CCC to cut its sales prices and large domestic stock piles of wool had accumulated, the CCC nevertheless advanced its average selling price $1\frac{1}{2}$ cents a pound, grease basis, on October 14, 1946, *to bring wool prices in line with advances in the parity price of wool*.

The CCC has been prohibited from selling wool at less than parity price under legislation due to expire April 15, 1947. With domestic wool (territory, staple, fine and fine medium, scoured basis) selling at the CCC price of \$1.07 a pound in mid-October 1946 (a price based on the revised farm parity price), growers received in effect a direct subsidy of 14 cents a pound when the CCC purchased this type wool at \$1.21 (113 percent of parity) plus an indirect subsidy provided by the tariff of 34 cents a pound on foreign wool, making a total subsidy of 48 cents to the domestic grower. The difference be-

¹⁸ Refer to the hearings of the Special Committee on the Investigation of the Production, Transportation, and Marketing of Wool, 79th Congress, 2nd session. Also see bill, H.R. 6043 (Report No. 2666), 79th Congress.

tween the CCC *purchase* price of this type of domestic wool and the world price for comparable foreign wool was 37 cents because foreign wool commanded a premium, 11 cents in mid-October, over comparable grades of domestic wool. While the CCC *purchase* price from growers for territory, staple, fine and fine medium wool in mid-October was \$1.21 a pound, or slightly above the *duty-paid* price of imported wool of comparable quality and preparation, the CCC *resale* price of \$1.07 a pound was considerably below the price of comparable foreign wool, *duty-paid*:

Since then, however, monthly increases in the parity price of wool have required further corresponding increases in Government selling prices. The CCC raised its average selling price of Government-owned fine wools three cents a pound, scoured basis, on November 30, 1946, and another increase averaging about three cents a pound, effective December 30, 1946. Furthermore, in accordance with the advance in the parity index of prices paid by farmers, the average price of wool was raised about $2\frac{1}{2}$ cents a pound on March 1, 1947, or about 15 percent higher on the average than before the first upward adjustment was made in October. The price rise practically eliminated the differential between the CCC *purchase* price of \$1.21 and the *selling* price of \$1.20 for domestic wool (territory, staple, fine and fine medium, scoured basis) in March 1947. After the December price increase occurred, CCC prices for most domestic wools were again too high to compete with foreign wools.

V. *Scope and Operations of the British Joint Organization*

At the end of the war, the United Kingdom was left with an accumulation of some 3,245 million pounds (equivalent to about two years' consumption) of wool acquired under the Imperial Wool Purchase Scheme. It was recognized that the holding of this surplus might seriously affect the wool market, that the stock should be reduced as rapidly as possible while being firmly held, and that its disposal should be carefully integrated with the marketing of current clips.

A conference of officials and experts from the United Kingdom, Australia, New Zealand, and South Africa met in London in April-May 1945, and worked out an elaborate agreement for a Joint Organization to achieve unified liquidation of the surplus at appropriate prices, in such a manner as to encourage consumption without

disrupting the market.¹⁹ The necessity for restoring a closer relationship between buyers and consumers of wool than had been possible during the war years was recognized. A return to auctions as soon as conditions would permit them to be attended by buyers from consuming countries was recommended. Before the war it had been the practice to dispose of the available supplies in the season and for prices to fluctuate to the extent required to equate supply and demand in that period.

The JO (actually a private company registered as United Kingdom and Dominions Wool Disposals, Ltd.),²⁰ an operating agency, stands ready to buy in any wool for which no other buyer has bid up to a "reserve" price assessed by an inter-governmental committee of the JO as appropriate to its type and quality. The JO assumed responsibility for all sales of Dominion-produced wool on November 1, 1945, and fixed "reserve" prices for 1945-46 at the same general level as the previous "issue" prices. Prior to the opening of the new season on July 1, 1946, the four governments agreed to a recommendation of the Directors of the JO that for the season 1946-47 the initial general level of "reserve" prices for Dominions' wool sold in the Dominions should be the same as the then existing average selling price *ex* store in the Dominion concerned. This was in accordance with the instructions in the disposal plan that the JO "will prescribe minimum 'reserve' prices at which it will be willing to take up any unsold new clips and it will offer at auction wool from its own stocks in such quantities as will prevent prices from rising much above the desired level."

Auctions were resumed in September and October of 1946, but, meanwhile, sales from stocks had been unexpectedly large—between July 31, 1945, and July 31, 1946, stocks had been reduced by 1,277 million pounds due mostly to (a) a quicker recovery in consumption than had been thought possible, and (b) an unexpectedly rapid stocking up (sales had been 50 percent greater than consumption).

In order to meet the large demands for wool the JO made offer-

¹⁹ The Committee Report and Recommendation of the British Wool Disposal Scheme is reprinted in *The Wool Record and Textile World*, Vol. 68, No. 1894 (August 30, 1945).

²⁰ The World War I predecessor of the JO was the British-Australian Wool Realization Association, Ltd. (BAWRA), which successfully liquidated some two million bales of Dominion-produced wool in about three years following the end of the war,

ings within the limits imposed by shortages of certain types and a shortage of handling facilities. While there has been some increase in the price of certain types of wool, between 1938 and 1946 the increase in prices on Dominion wool was similar to the increase in the price of South American wool. The increase in wool prices incidentally was not as great as the mean of the increase of prices of other commodities. JO selling policies for 1947-48 have not yet been established.

In regard to the JO surplus-disposal agreements, Professor Joseph S. Davis has observed:

"This is an important and promising experiment that will deserve close watching, especially because of three distinctive features which improve the prospects of workability. (1) Despite the drift of official opinion in favor of ICAs (International Commodity Agreements) open to adhesion by all interested governments, this wool ICA is purely a British Commonwealth agreement. (2) It provides for the appointment of a consultative committee, representing non-member wool-importing countries and the International Wool Textile Organization. This may prove adequate if, as may be anticipated, operations under the agreement will also be subject to broader international supervision. (3) Operations are entrusted, not to a governmental or intergovernmental agency, but to a corporation relatively free from bureaucratic limitations and political influence; and the Chairman of its Board is Sir Harry Shackleton, who has been United Kingdom Wool Controller since 1939."²¹

The International Wool Study Group (composed of representatives of the governments of Argentina, Australia, Belgium, Canada, China, France, Italy, New Zealand, South Africa, Uruguay, United States, and United Kingdom), referred to at the outset of this paper can be expected to examine carefully the future policies of the JO at its meeting in London in April 1947.

VI. *World Production and Carry-over*

World wool production in 1946, totaling 3,710 million pounds, grease basis, was about 12 percent below the 1941 record clip but slightly above the prewar average production (Table IV). Wool production in the British Dominions, accounting for 41 percent of world production in 1946, was slightly above the prewar average. Production in Australia, which produces over one-fourth of the world's wool, was 970 million pounds in 1946, 4 percent above the

²¹ Joseph S. Davis, *International Commodity Agreements: Hope, Illusion, or Menace?*, The Committee on International Economic Policy (New York, 1947) p. 45.

1945 output. The British Dominions, which ordinarily produce about three-fourths of the *apparel* wool used throughout the world, are the chief competitors of United States wool producers.

World stocks of apparel wool at the beginning of the 1946-47 season (about July 1) were estimated to total about five billion pounds, grease basis, which is more than three times as large as 1934-38 average stocks and is much larger than in any previous

TABLE IV. WORLD WOOL PRODUCTION AND CARRY-OVER,
AVERAGE 1934-38, ANNUAL 1939-46

Years	Production ¹	Carry-over ²
	Millions of pounds (grease basis)	
Avg. 1934-38	3,720	1,579
1939	4,120	N.A.
1940	4,210	N.A.
1941	4,240	N.A.
1942	4,150	N.A.
1943	4,130	N.A.
1944	3,920	N.A.
1945	3,740	5,097
1946 ³	3,710	4,958

¹ Mostly wool shorn plus pulled wool and wool on skin at shorn equivalent.

² Apparel wool.

³ Preliminary.

Source: U. S. Department of Agriculture, Bureau of Agricultural Economics.

peacetime year. Shifts in foreign stocks from Government to private owners in 1945-46 were appreciable. Approximately 40 per cent of the estimated world carry-over of apparel wool was owned by the JO in 1946 compared with about 66 percent of the world total in 1945. Carry-overs in five Southern Hemisphere exporting countries—Australia, New Zealand, South Africa, Argentina, and Uruguay—at the beginning of the 1946-47 season were indicated to total about 2.7 billion pounds, grease basis, compared with the revised estimate of three billion pounds in 1945. The 1946 stocks included a considerable quantity of wool in the British Dominions which had been sold and was awaiting shipment to Northern Hemisphere importing countries. If *world* consumption of wool continued at the high levels attained during the last quarter of 1946 (which is considerably above world production) then the world wool carry-over would be reduced for the first time since 1939 or 1940. *Only a relatively small part of the carry-over consists of good quality, fine-grade wools.*

In order to liquidate the stock pile it will be necessary for manufacturers to use more of the defective types of wool, which ordinarily require substantially more labor to work up into the finished articles than do the free types. Hence, when labor is a limiting factor in mill output, mills may process a smaller proportion of defective wool.

VII. U. S. Mill Consumption and Consumer Income

Comparison of mill consumption of wool with consumer income during the prewar period indicates that mill consumption of apparel wool in 1946 was considerably above the rate shown by the estimated prewar consumption-income relationship (Chart III

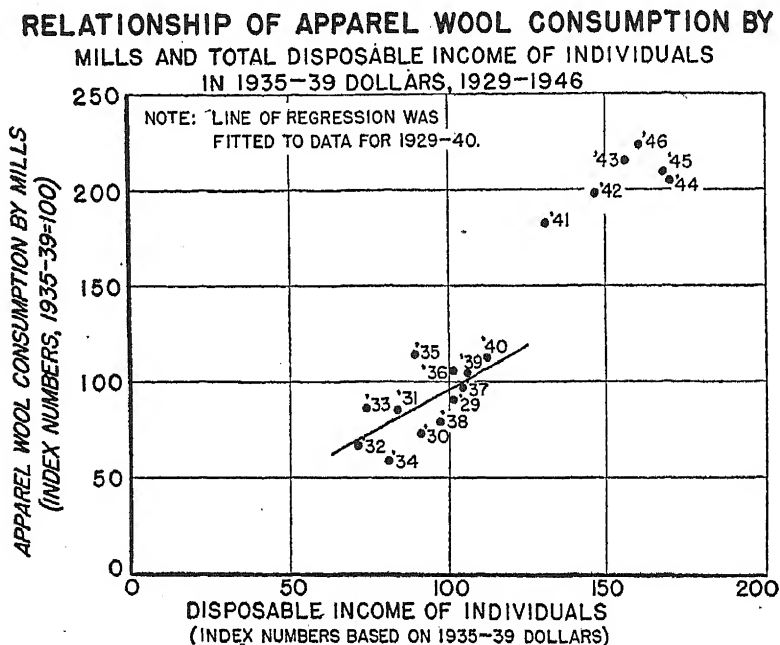


CHART III

Table V). The large shift in demand for apparel wool during the war years and in 1946, compared with the prewar period, poses the question of how much of this expanded consumption of wool will be

*retained within the next few years when demand returns to "normal."*²²

The primary reason for the "abnormal" quantity of wool consumed during the war years in relationship to consumer income was the large quantity of woollen goods purchased by the Army and Navy. However, consumer incomes doubled during the war and, as durables disappeared from the market, consumers spent more for nondurables such as clothing.²³ Mill consumption of wool in 1946 and

TABLE V. ANNUAL MILL CONSUMPTION OF APPAREL WOOL, TOTAL DISPOSABLE INCOME OF INDIVIDUALS, AND CONSUMERS' PRICE INDEX, 1929-46

Year	Mill consumption of apparel wool, scoured basis ¹	Total disposable income of individuals ²	Consumers' price index ³ (1935-39=100)
	(millions of pounds)	(billions of dollars)	(per cent)
1929	253	79.6	122.5
1930	201	70.7	119.4
1931	238	59.6	108.7
1932	189	45.6	97.6
1933	246	44.5	92.4
1934	167	51.0	95.7
1935	319	56.3	98.1
1936	300	65.2	99.1
1937	274	69.2	102.7
1938	220	62.9	100.8
1939	293	67.7	99.4
1940	310	72.9	100.2
1941	509	88.7	105.2
1942	581	110.6	116.5
1943	603	124.6	122.7
1944	577	137.4	125.5
1945	589 ⁵	139.6	128.4
1946	620 ⁵	144.5 ⁴	139.2

¹ *Bulletin of National Association of Wool Manufacturers, 1945, p. 126.*

² Department of Commerce.

³ Bureau of Labor Statistics.

⁴ Preliminary.

⁵ Bureau of Agricultural Economics.

²² The writer does not wish to imply that consumption of wool will return to the prewar income-consumption pattern. "Normal" should be interpreted only as a standard of comparison. Other factors such as the increase in population, shifts in income distribution, development of mixed fabrics, and new uses for wool must be taken into account.

²³ On the basis of a subsequent analysis made by the writer, it was found that estimated expenditures for wool clothing in 1946 were 15 per cent above the amount which would have been spent if the prewar relationship of expenditures for wool clothing to total consumer expenditures had been maintained. Paradiso's analysis comparing actual retail sales of men's, women's, and family apparel stores with calculated sales based on sales-income relationships, showed that in the first half

in early 1947 was at an extremely high level, compared with average consumption of the prewar period, and *maintenance of this accelerated rate of mill consumption for wool will depend largely upon consumer real incomes and how they are spent*. Consumption of wool is likely to drop unless consumers continue to spend as large a percentage of their incomes on woolen goods as they did in 1946. But in view of the heavy mill consumption and rising commercial inventories, it is unlikely that the 1946 level can be maintained unless prices are substantially reduced or unless woolen textiles replace other types of fabrics. Also, synthetics will probably offer increasing competition to wool as new technological developments occur in the structure, design, and manufacture of fabrics and textiles.

VIII. Prospects for U. S. Production and Imports, 1947

A further decline in domestic production of raw wool may be expected in 1947. According to the U. S. Department of Agriculture, "On the basis of the number of stock sheep on January 1, 1947, and past relationships between sheep numbers and sheep shorn, and assuming average weight per fleece equivalent to the 1935-44 average, shorn wool production for 1947 may be about 255 million pounds."²⁴

Imports in 1947 are expected to average below the 1946 level because of lower mill consumption resulting from decreased demand for many woolens, and reduction of inventories of foreign wool held by mills if consumption of foreign wool is diminished in 1947.²⁵ However, since the demand for fine wools is more than for medium and coarse grades (which are in much larger supply than fine grades), 1947 imports may be 300-500 million pounds above the 1935-39 average annual net imports of 86 million pounds.²⁶

of 1946, sales in men's clothing and furnishings stores were 11 percent above sales that could have been expected on the basis of the prewar relationship of sales and the disposable income of individuals. Actual sales in women's apparel and accessory stores were 50 percent higher, and in family and other apparel stores actual sales were 18 percent above the prewar relationship. Since these stores carried many kinds and types of apparel for various uses, including cotton, rayon, and the like, and there are other factors involved, comparisons with the data in Chart III should not be made. See Louis J. Paradiso, "Retail Sales and Consumer Income Since VJ-day," *Survey of Current Business*, October 1946, pp. 10-17, especially Table II and Chart V. Also, see Charles D. Hyson, Savings in Relation to Potential Markets, *American Economic Review*, December 1946, p. 901.

²⁴ U. S. Department of Agriculture, Bureau of Agricultural Economics, *The Wool Situation*, March 1947.

²⁵ *Ibid.*

²⁶ *The Livestock and Wool Situation*, December 1946.

IX. Prospects for World Production, 1947

World production of wool in 1946-47 is not expected to vary much from 1945-46.²⁷ However, production of fine wools may be below the prewar average, while production of medium grade wools is expected to be above the prewar level. Because of appreciable sheep loss from drought, production in Australia and South Africa, the principal foreign fine wool producing countries, in 1946 was about 4 percent below the 1934-38 average production of 1,234 million pounds, and 18 percent smaller than the 1941 record. In New Zealand and South America, which produce medium grade wools, production in 1946 was close to the wartime peak. Production in these countries is expected to equal the 1945-46 production of 1,110 million pounds.

X. Prospects for World Consumption, 1947

Since considerable progress has been made in rehabilitating textile industries in western Europe during the past year, consumption of wool there may be expected to continue to gain. Purchases by France (once the largest manufacturer of wool products in Continental Europe and the world's third largest consumer of wool prior to the war) and Belgium in 1945-46 were equivalent to more than their annual consumption at the 1934-38 rate.²⁸ The Belgian wool textile industry has probably made the greatest postwar recovery. Production of yarns and fabrics had regained the 1938 level by July 1946, and in December 1946 production, as a whole, was reported to be 50 percent above the prewar rate. Italy has also made appreciable strides in rejuvenating its woollen industries. Shortages of fuel and power are still restricting production in Western Europe, but the principal difficulty appears to be shortages of skilled labor.²⁹

Increased consumption in the United Kingdom and on the Continent, together with the reduction of world production in prospect, will lower the accumulation of world stocks of wool in 1947 and may, within a few years, bring about some reduction of the surplus.³⁰

²⁷ *The Livestocks and Wool Situation*, September 1946.

²⁸ In one particular raw apparel wool sale late in October 1946 involving 205,000 bales of wool in Sydney, Brisbane, and Newcastle, French buyers obtained about 80 percent. *Journal of Commerce*, November 13, 1946.

²⁹ *The Wool Situation*, March 1947.

³⁰ Consumption in the United Kingdom should continue to increase as additional labor becomes available. During the war, consumption of wool by civilians in the United Kingdom averaged only 35 percent of prewar; thus, future needs for clothing and woollen garments are appreciable. Moreover, the United Kingdom will seek to regain its share of the world wool market. Consumption of wool in the United

The JO originally expected that *if total world consumption of apparel wool increased to a level 12 percent above prewar, it would require approximately 12 to 13 years (from mid-1945) to dispose of existing stocks and new clips, at the estimated rate of future production*, despite the fact that in both the United States and foreign countries sheep numbers have been appreciably reduced from the high wartime levels. Achievement of such a level of consumption would require sustained world purchasing power at a high level, lower prices for wool to encourage consumption, and extension of long-term credit to needy customers.

The JO will exert considerable influence over the marketing of three-fourths of the world's export supply of apparel wool. Much of the five billion pound world stock pile of apparel wool resulted from the sharp rise in production, mostly in the Southern Hemisphere countries, in response to higher prices during the early war years. Of this huge carry-over which will tend to act as a buffer against a sustained price advance of wool, about 2,600 million pounds were owned by Government organizations and of this total the British Government owned 81 percent, whereas the United States Government held 19 percent. The policy of the JO to purchase a portion of the new clips, which do not sell at "prescribed" prices, will offer support to world prices.

XI. *JO Program vs. CCC Program*

With the resumption of the wool auctions in Sydney and in London in September 1946, prices of Dominion fine wools advanced to around the same level as the CCC *purchase* prices for comparable domestic wool, largely as a result of heavy Continental European buying, and continued demand for fine grade wool in United States markets. Prices of fine quality wools in Australia in early March 1947 were 30 to 40 percent above last season's British "issue" prices. Wool prices in the South African and South American markets were

Kingdom in the 1945-46 season averaged roughly three-fourths of the 1934-38 average consumption. Consumption in the Southern Hemisphere countries and in Canada may decline from their wartime peaks but remain above the prewar consumption levels.

It is hard to determine what proportion of the increased wool consumption attained in the United States during the past six years will be retained in the future. Before the war, the per capita consumption of wool in the United States was only half that of the United Kingdom. Consumption of apparel wool in the United States for 1947 has been estimated by the U. S. Tariff Commission at 750 million pounds, grease basis. This is 27 percent above the prewar level, and would involve annual import of 300 million pounds of foreign wool.

reported to be 20 to 30 percent above those of last season. Because of the heavy demand for fine quality wools and the limited quantity of such wool in the carry-over, prices of foreign fine wools were substantially higher than the JO support-prices, which were considered relatively low on the basis of market conditions.

Total offerings of wool in the United Kingdom from September to December 1946 (practically all of which was sold) were larger than the July-June sales in the years 1934-38, and are expected to increase in the last half of the current season. Combined offerings at all places from the JO stocks were expected to aggregate over a million bales in the 1946-47 season (in addition to the new production of the three Dominions). Commercial buyers have bought practically all the wool offered. It has not been necessary for the JO to purchase fine wool in any considerable quantity,³¹ but there has, however, been a moderate accumulation by JO of average and inferior style crossbreds out of the current clip in New Zealand.

The policy of the JO to endeavor to "stabilize" prices for Dominion wools by purchasing new clip wools which failed to find buyers at the "prescribed" prices, by auctioning wools from their own stocks, and new production, and hence regulating the flow of wool to the world market, is more flexible and offers more commercial "freedom" than the CCC program, which has simply placed a price "floor" under wool with little or no regard to current market conditions.

The achievement of a balance between supply and demand for wool has been complicated by the two different world selling agencies—the JO and the CCC—employing different price policies. The JO has appeared to pursue a policy of encouraging wool consumption in the light of consumer purchasing power, market conditions for the various types and grades of wool, and prices of competing fabrics. The outstanding difference between the JO and the CCC price policies, however, is that the former agency has ostensibly taken consumers into account in deriving its price schedule, whereas the CCC has seemingly neglected to recognize the importance of the demand for raw wool. The JO not only recognized the wool producers' interests, but has given consideration to wool buyers in an effort to prevent an unwieldy supply from accumulating. The CCC wool policy, on the other hand, has had little (if any) regard for the effects of its shortsighted program on the disposition of the

³¹ *The Wool Situation*, March 1947.

wool supply. The consequences of this policy upon the domestic wool supply situation have been already demonstrated, especially since the CCC raised selling prices in December 1946. Moreover, it might reasonably be assumed that the disparities between domestic and foreign wool prices have significantly influenced price policy decisions of the JO in recent months.

The CCC selling prices for domestic wool have been related to the parity index, which may be contrary to conditions developing in the wool and textile markets. Hence, the prices of domestic wool have been set by legislation, while the price of the remainder of the world wool supply is controlled by the JO. *For the next year at least, wool prices will depend on the actions taken by the respective governments which have monopolistic control over the world wool market.* The history of the ill-fated Federal Farm Board of 1933 in this country should provide an illustration of the pitfalls to be avoided in commodity control schemes of this nature.

XII. Prices and Market Prospects for Wool

Agricultural prices are commonly known to be more sensitive than industrial prices (or prices paid by farmers used to compute the parity index). With a decline in the general agricultural price level (which is to be anticipated), it will become necessary for the CCC to cut selling prices of wool to prevent additional accumulation of stocks to levels which would have a depressing effect on future prices of domestic wool.

Production of competing synthetic fabrics will be encouraged unless the price disparity between these fabrics and wool narrows. Per capita consumption of wool fabrics declined about 30 percent from the turn of the century to 1946.³² But, wool comprised about 11 percent of the total consumption of four textile fibers in the United States in 1945, compared with 9 percent in 1935-39. The importance of rayon, however, shifted from 8 percent of total consumption in 1935-39 to 13 percent in 1945.

It should be emphasized that the recent heavy purchase of wool following the resumption of auctions in Empire countries has made the *appraisal* of the world wool stock pile very difficult in terms of

³² From brief of Woolen and Worsted Fabrics Group of the National Council of American Importers, Inc., with the Committee for Reciprocity Information, February 26, 1947, (Washington, D. C.). *Journal of Commerce*, February 27, 1947, p. 16.

quantity or value of wool. It is probable that purchases by France, for example, surpass her current requirements, and that much of the wool recently bought by France is being held in storage or was bought for other countries. Although wool purchases are heavy, it is doubtful whether mill consumption in some consuming countries is keeping abreast of these purchases; thus, the world inventories of raw wool are probably increasing. This would suggest that some of the buying in Australia, South America, and elsewhere may have been of a speculative nature.

A high backlog of demand for cotton, rayon, and woolen textiles as well as the raw commodity exists throughout countries of Continental Europe, the United Kingdom, and in Asia. Since these countries need credit to buy goods, it is important that prices be low enough to maintain a continuous export-demand.

The increases in prices of Australian fine wools during the early part of November reflected the heavy purchases of wool made by France and Belgium, partly financed by recently obtained credits. Whereas it may require many months to fill this demand, prices will largely determine the course of purchases. Of the three basic textile fibers (cotton, rayon, and wool), wool is in better supply throughout the world than the other two. United States exports of wool products in 1946 far exceeded prewar levels. As cotton and rayon are in shorter supply, the size of the potential export market for these fibers will be larger than that for wools.

Foreign wool prices will probably begin "easing off" before domestic prices decline because of the greater vulnerability of foreign wools to world market conditions. While supported by high levels of employment, consumer purchasing power, and by the Government's support-price program, prices of domestic wool will be adversely affected as higher quality foreign wools are sold in order to build up dollar exchange, as consumer expenditures shift to other goods, and as prices of other substitutable fabrics decline.

Thus, although wool consumption in this country appears to be at an untenable level in relation to income, and both domestic and world carry-overs are excessive, the price outlook is dominated by Government policies rather than by market forces. To the control exercised by the CCC, buyer of the whole domestic clip, must be added the control of the JO, which is not, like the CCC, bound by legislative restraint and may be expected to pursue a price policy aimed at gradual liquidation of the surplus.

XIII. *Cost of CCC Program*

The CCC had a "loss" of \$37,466,659 on its wool merchandising program in the 45 months between April 1943 and December 31, 1946, when the CCC bought 1,272,819,513 pounds of domestic wool costing the CCC \$700,787,726 (excluding storage charges now running about \$330,000 a month). During this 45-month span, 809,584,800 pounds of the CCC wool stock pile were sold for \$451,559,947. The CCC stock pile of about 455 million pounds was valued at roughly \$225,000,000 at the end of 1946.

Approximately \$2,065,000 of the total losses could be attributed to the reappraisal program of the CCC, which now holds a reserve of \$55,000,000 for anticipated additional losses in the liquidation of CCC stocks, assuming a loss of 10 cents a pound.³³ This would make the total CCC wool losses over \$92,000,000.

If this sum is added to the increased cost of woolen textiles to consumers, as an incidence of the tariff, the total subsidy to wool producers would be substantially higher.

XIV. *Suggested New Policy*

Although the "floor" under prices of wool may have a stabilizing influence, it would be desirable to inaugurate a policy which would make practicable a gradual removal (to protect growers from sustaining losses) of present CCC subsidies by making subsidy payments depend upon improved flocks, grading practices, and finer quality wools (while income and employment are still relatively high in the United States), which could compete with foreign wools. Unless wool textile manufacturers in the United States can obtain wool at prices at or near the world market level, they may not only have difficulty finding markets abroad but also at home.

Although there are many complications in measuring the degree of effectiveness of the tariff³⁴ on raising the prices of domestic wools substantially above free world prices,³⁵ the influence of the other policies of the Government has been to accentuate the maladjustments in the wool industry. Hence, the effects of these policies

³³ From testimony of Harry E. Reed, Director of the Production and Marketing Administration, U.S.D.A., before the Senate Agriculture Committee, March 5, 1947. *Daily News Record*, March 6, 1947, p. 1.

³⁴ On balance, it seems that the significance of a reduction in the tariff on raw wool depends fundamentally upon the extent to which imports increase, the price falls, and the exchange of goods is intensified.

³⁵ See Haldor R. Mohat, *The Tariff on Wool*, *op. cit.*

should be reexamined and the tariff policy appraised in the light of present conditions, if a balance between wool production and consumption is to be attained and our domestic trade policy made compatible with our announced aims on international trade.³⁶ Lower tariffs on imported wool, however, might weaken the Government's support-price program. Gradual elimination of the subsidies, moreover, may force some reduction in the size of the domestic wool producing industry because of competition from foreign wools which have a comparative advantage in the world market.

Many of the elements of a sound solution of the world wool problem center in the United States. The United States has long been a reluctant importer, as illustrated by our high tariff policy, a war-time restriction on the use of foreign wool, and support-prices of domestic wool at artificial levels. Even in the interests of the strong political blocs of organized wool growers changes in the United States' wool policy are long overdue.³⁷ How can the problem of disparity between potential production and consumption of wool be solved? The answer lies in expanding world wool consumption while instituting a program to adjust production to consumption.

Negotiations have been underway for Australian producers to ship wool (less desirable types) to Japan in exchange for silk shipments and credits to buy other goods, on a basis somewhat similar to CCC arrangements to ship cotton to Japan.³⁸ Japan, the world's fifth largest prewar purchaser of wool, annually consumed about 200 million pounds, grease basis, and usually had an adverse wool trade balance.³⁹ Such a program is designed to bolster the sagging Japanese economy and reduce costs of United States occupation.

On balance, the CCC subsidy program for wool has apparently encouraged the perpetuation of maladjustments, which over the long-term can neither benefit the producer nor the consumer of wool. Some price pegging plans for farm products may be vital in the interest of short-run economic stability, but we should pursue

³⁶ See T. W. Schultz, *Agriculture in an Unstable Economy*, McGraw-Hill, 1945, p. 261.

³⁷ See Hearings before the Subcommittee on Agriculture and Mining; Special Committee on Postwar Economic Policy and Planning; Postwar Agricultural Policy; 78th Congress, second session. Statement by J. S. Davis, p. 1706.

³⁸ *New York Times*, January 25, 1947, and February 12, 1947.

³⁹ The Japanese war machine probably consumed a major share of this wool. The following countries rank from first to sixth in order of importance as net importers of raw wool in the period 1934-38: United Kingdom, France, Belgium, Germany, Japan, United States. See study on world movements of raw wool, by Dr. Gerda Blau, International Wool Secretariat, New York.

a price policy which seeks to counteract cyclical movements in the price system and not to perpetuate secular maladjustments.⁴⁰ Hence, an adequate price policy for wool should prevent chronic surplus and mitigate ill effects of weather and cyclical surpluses. The Wool Study Group organized last year should be well qualified to conduct a comprehensive and bold international investigation of world wool problems. Export markets for wool may be expanded as foreign exchange and credit become available through such facilities as the International Bank and the International Monetary Fund.

It is obvious that the CCC price policy has not been successful in marketing the domestic wool clip. A new and better policy is needed. Eight bills (three in the Senate and five in the House) designed to continue the support-price program for wool and to establish new regulatory measures for wool, were introduced between January 3 and March 18, 1947.⁴¹ The new O'Mahoney bill was substantially like the earlier one (S. 2033). The Barrett and the Hill bills, however, would set up import quotas for raw apparel wool. Secretary of Agriculture Anderson endorsed the bill introduced by Mr. Hope, Chairman of the House Committee on Agriculture,⁴² permitting the Department of Agriculture to charge fees up to 50 percent of the *ad valorem* tariff rates on foreign wools, cotton, and other agricultural commodities when the Secretary of Agriculture finds that imports are threatening the domestic support-price program. Nevertheless, this bill would prohibit the assessment of import fees above the usual customs duties if they were in "contravention of any treaty or international agreement to which the United States is or hereafter becomes a party." The Herter, Saltonstall-Lodge bills (approved by the wool trade)⁴³ would provide for Government continued support of domestic wool prices to December 31, 1948, at 90 percent of parity, and would permit the CCC to sell its existing wool stocks in competition with imported wool. Seven of the bills would permit the CCC to sell its wool below the parity price, while four of the bills would support wool prices at 90 percent of the so-called "comparable" price.

⁴⁰ See Charles D. Hyson, "A Price Policy For Agriculture," this JOURNAL, November 1945.

⁴¹ S.103 (O'Mahoney bill, January 8); S.814 (Robertson bill, March 7); H.R. 63 (Granger bill, January 3); H.R. 1890 (Barrett bill, February 12); H.R. 2318 (Hill bill, February 28); H.R. 1825 (Hope bill, February 10); H.R. 2401 (Herter bill, March 6); S.917 (Saltonstall-Lodge bill, March 18)—80th Congress, 1st session.

⁴² *Daily News Record*, March 13, 1947, p. 1.

⁴³ *Ibid.*, March 7, 1947, p. 5, *The Commercial Bulletin*, March 22, 1947, p. 1.

The case against import quotas should be a familiar one by now. An import quota on wool would tend to accentuate maladjustments between production and consumption by encouraging increased use of lower priced synthetic fibers. Import quotas, by fixing the volume of trade, may be more restrictive than tariffs, and invite retaliatory measures by countries whose trade was affected. They would contradict our international trade program designed to expand consumption and production.

Experience with two-price plans before the war merely aggravated the surplus problem. The CCC cotton program is a good case in point. Unlike the long upswing of business activity following the accumulation of large surpluses during most of the Thirties, the present market outlook has quite a different view. Confronted with the prospects of lower prices for other commodities which have been more profitable than wool to produce, coupled with an anticipated decline in sales of non-durable goods such as woollen apparel and textile fabrics, a support-price program for wool without provisions for production adjustments offers little guarantee of correction of the maladjustments in the domestic wool industry. A bold, impartial, and comprehensive study might be made of this problem.

Substitution of the "comparable" price formula for the present parity formula would have raised the parity price of wool from 40.4 cents to 50.4 cents in mid-February 1947. The wide gap between the parity ratio for wool and for all farm products (Table III) is explained by the fact that the average base price for wool in August 1909-July 1914, was only 18.3 cents. Hence, wool producers seek a new parity standard giving them higher support-prices.

The parity principle in the case of wool and many other farm commodities was completely abandoned in the Price Control Act of 1942.⁴⁴ Provisions in the Robertson and O'Mahoney bills authorizing support-prices for domestic wool at the 1946 level or 90 percent of the "comparable" price (whichever is higher) until the end of 1948 would continue this practice; however, the latter bill would support prices at an indefinite level until the end of 1950. The original concept of parity was to provide "fair exchange values" for farm commodities.⁴⁵ However, the parity formula based on a relationship of some thirty-five years ago does not adequately reflect

⁴⁴ See John D. Black, *Parity Parity Parity*, Harvard Committee on Research in the Social Sciences, Cambridge, Mass. (1942) pp. 38, 39, 64, 65, 123, 146.

⁴⁵ *Ibid.* Ch. V. Also, Charles D. Hyson, "A Price Policy for Agriculture," *op. cit.*

changes in cost of wool production, distribution, and market conditions since then. Moreover, computation of the purchasing power parity of wool necessitates calculation of a weighted average price for all types of wool, which is complicated by the wide variation in types and grades.

It may be expected that a compromise bill will be passed by Congress authorizing the CCC to sell its wool stocks below parity. The CCC should not adopt a program of dumping wool stocks on the market, but rather develop a system of orderly liquidation of the carry-overs whereby wool stocks put upon the market would be prorated on both a grade and quantity basis over a period of time, according to market conditions. The CCC may be expected to work out selling price schedules based on the comparative values for wool and at a price that will move the supply. A revaluation of some CCC held wool would be necessary because of shifts in demand for various types since 1943, and much of the wool is of the defective type. A merchandising program could be most effectively devised by a committee composed of representatives of the Department of Agriculture and the wool handlers and dealers. The CCC wool selling price schedules should be closely integrated with the "reserve" prices of the JO, to help ensure price stability in the world market. But, some difficulty may be encountered because of the complexities of determining comparable grades, *type by type*, between foreign and domestic wools.⁴⁶ The excellent results obtained by a return to the auction method of marketing Dominion-produced wools may encourage the reappearance of the prewar wool auction system in the United States.

Consideration might be given to the creation of a *temporary* Domestic Wool Organization with representation of wool producers handlers, and manufacturers to serve as a consultative committee assisting in the computation of the price schedules for domestic wool within the existing framework of the CCC. Its activities would be subject to periodic review by Congress. The Domestic Wool Organization would help undertake the responsibility of the orderly marketing of wool and gradual liquidation of the surplus. The price policy should be so devised that it would necessitate a minimum of interference with the "free" market mechanism so that the surplus of wool does not become chronic.

⁴⁶ Preferences for types of wool vary widely among various wool scourers and manufacturers of wool fabric, hence the price differentials between foreign and domestic wools frequently are not uniform.

The International Wool Secretariat in London (a British Commonwealth organization), which has done useful technical and promotional work, might be extended to include wool-producers organizations in the United States. *Our Government's Wool Marketing Improvement Program (to make domestic wool more acceptable to buyers) was a step in the right direction, but with this program needs to be a means to improve flocks and wool.* Since some of the grazing lands (particularly in areas of the western states) may need to be shifted away from producing sheep to more profitable alternative uses (as occurred during 1942-46) it will be necessary that measures be taken to prevent or alleviate any serious dislocations which may arise due to difficulties of finding alternative employment. This may prevent adjustments from becoming affected by the free play of market forces as quickly as the circumstances require; thus, a *limited* period of transition for orderly adjustments should be designed to promote a shift away from uneconomical wool production into new and productive occupations. Growers should be protected from financial loss while the abnormal carry-over is being liquidated. Growers will probably never be in a better financial position to have a constructive adjustment program instituted than at present.

The policy of indefinite subsidation of wool growers without regard to incentives for improvements of breeding better flocks, raising the quality of wool, perfecting the sorting, grading and preparation of wool for marketing, lowering costs of production (and hence make wool available at lower prices to consumers), is not only an uneconomical use of resources and hence a social waste, but such a policy is not compatible with an expanding, dynamic, and healthy economy. Development of a sound domestic wool policy would contribute greatly not only to evolving an effective international wool policy but to meeting the pressing problems of raw materials in general.

Addendum

Since this paper went to press, the Senate passed a revised and amended version of the original Robertson bill, which in its present form, guarantees to support domestic wool prices at the 1946 level until the end of 1948, and permits that the CCC may "dispose of any wool produced prior to January 1, 1949, at prices which will permit such wool to be sold in competition with imported wool." The bill originally provided that not less than \$130 million shall be made

available to support the price of wool produced in the calendar years 1947 and 1948. Recognizing the difficulty of maintaining a fixed price for domestic wool at approximately the wartime peak without additional restrictive measures, the House Committee on Agriculture approved an amended bill authorizing the Secretary of Agriculture to impose import fees up to 50 percent ad valorem on imported wool, including a "floor" tax on inventories of imported raw wool at a rate equal to the amount of the import fee invoked.

Imposition of import fees, coupled with a high support-price for domestic raw wool, would: (1) tend to disrupt cost structures of textile manufacturers and raise prices at a time when living costs are already inflated; (2) result in supplanting certain wool marketing operations ordinarily conducted by private enterprise, and would practically assure the Government's participation as a principal if not the only buyer of the domestic clip; (3) in view of a probable lower price level in the ensuing two years prove costly to the taxpayer. The institution of an import fee on wool may have serious consequences far beyond the limits of the domestic raw wool industry itself. It may jeopardize our Reciprocal Trade Agreements Program, and threaten the successful outcome of the International Trade Conference in Geneva, which was largely sponsored by the United States.

Although the domestic farm value of wool was only \$118 million in 1946, "protective" legislation has had the effect of substantially increasing the cost of wool clothing on which American consumers spent an estimated \$4.8 billion in 1946.

An additional duty on wool would weaken Britain's ability to improve her balance of payments position with us by exchanging wool for dollars, and hence would tend to contradict the intent of the Anglo-American Financial Agreement.

REPRODUCTION AND REPLACEMENT OF FARM POPULATION AND AGRICULTURAL POLICY

GEORGE W. HILL AND DOUGLAS G. MARSHALL

University of Wisconsin and University of Minnesota

THE natural increase of American farm population, measured in absolute numbers, has been so consistent and so large during the life span of our country, that few people have taken cognizance of factors that are now working toward a stationary, and, in some areas, a declining farm population. The knowledge that there has been a steady decline in the fertility of farm families during this prevailing period of growth has been either obscured or overshadowed by two positive forces operative over this historical period. The first of these was the heavy increment of immigrants of child-bearing age during most of the nineteenth century and the first two decades of the twentieth. This migration provided a steady flow of young and middle-aged adults to augment the total number of child-bearing couples. The resulting disproportionately large fecund population of America caused a birth rate in excess of that prevailing in northern and western Europe in the same period, and greatly in excess of that which would have obtained in the United States without the increment of child-bearing couples. The second positive force was the rapid impact of modern medical science on mortality. This latter factor has been especially influential in reducing the infant mortality rate, but it has also made life safer for all ages. Both of these have resulted in a stimulation of the natural growth of our population.

As a consequence of seemingly unlimited reproduction potentialities of our farm population, rural sociologists and agricultural economists have, wittingly or unwittingly, given support to a belief in the inevitableness of the phenomenon of farm population increase, and have been rather proud to be a part of the "seed bed of American population." Few have ever given expression to the result of the impact of culture on fertility and how the processes of secularization combine to reduce fertility. Furthermore, there seems to have been all too little recognition of the fact that there are just as great differences in family fertility *within* the farm population, as there are *between* farm and urban inhabitants. In the light of facts which will be presented we should specify that certain segments only of our farm population have an excess of fertility in the sense

that they are rearing children who are surplus to agriculture and who migrate to the cities and who thus contribute to their growth, to offset the low fertility of urbanites. Furthermore, the high fertility segment is growing smaller in numbers as measured by each succeeding recent national census.

We are not going to take the position that America should be alarmed over this declining trend, but neither do we wish to ignore cultural change that is causing farm family fertility to move inexorably toward the same level of low fertility that is characteristic of urban populations. We also strongly assert that American agricultural policy can be realistic and equitable only as it takes full cognizance of the real trends in population.

The following analysis is therefore concerned with testing the hypothesis that farm family fertility approaches that of urban families in direct proportion to the reduction of their respective cultural differences. In other words, fertility patterns are in themselves a mark of status in a culture system and as rapidly as other factors, such as income, mobility, religion, nationality, urbanization, et cetera, become equal, the greater the similarity in fertility behavior.

To test this hypothesis and to explore the contributing factors, we have selected the farm population of four Midwestern states: Minnesota, Wisconsin, Iowa and Illinois. The four states were chosen to give us a historical cross-section in our national cultural development in the belief that on a continuum of secularization each of the four states can be located on a definite point on the scale, with Minnesota representing the newest of the populations and Illinois the oldest. In this fashion the data of the major hypothesis will be exhibited in four broad separate stages of the acculturation process. In a further attempt at refinement of the measurements, each of the states was sub-divided into economic quartiles, making possible comparisons between the upper and lower quartiles of the respective states. It has been assumed that this subdivision according to one economic factor will be valid historically and sociologically as well as economically, and therefore, in accordance with the theory of cultural change we may expect as great or greater differences between the quartiles within a state than will necessarily be the case for inter-state comparisons.

By contrasting data from four states where the highest economic quartile of counties forms a relatively homogeneous geographic

area, and where the lower quartiles are at opposite extremes of the total geographic region under analysis, we have an heterogeneous area in which it should be possible to uncover many of the causes of declining fertility. In the total universe studied we will find many recognizably different strata or groups of families, many varying patterns of farming, differences in income and social customs. It is from this extensive and heterogeneous universe that we hope to find the conditions related to high fertility, those conditions associated with low fertility, and, perhaps, the conditions associated with a stationary population.

Selection of Data and Method Employed

In casting about for the *matériel* of the study, letters were written to the Bureau of Vital Statistics of the respective states in hopes that data for births and deaths over the historical period 1920 to 1940 could be secured, classified according to sex, color, age of mother, and rural and urban residence. We were disappointed in the replies, and it was evident that any refined measures of differential fertility would necessitate a reworking of the original schedules in each state office. That procedure, of course, was out of the question. Only for the state of Wisconsin were we able to secure a limited amount of data to permit some refinements of the tabulations. Otherwise, the data have come from published volumes of the Federal Census.

The economic index used to segregate the upper and lower quartiles of counties in each of the states consisted of the value of land and buildings per acre as reported in Vol. 1, *Agriculture, Census of 1940*.¹ In selecting the counties for each quartile, those having a smaller proportion of farm population than the state average were eliminated.

We attempted to make the field of study that of farm family

¹ The selection of this index of economic status was made after the available economic indices were tested for association. It was found that the predictability of economic status for this index was highly correlated with crop acreage per farm, gross income per farm, and plane of living index of Harold T. Christensen, *Population Pressure Among Wisconsin Farmers*, unpublished Ph.D. thesis, University of Wisconsin, 1941, pp. 117-120. Our choice was finally motivated by the relatively greater accessibility of the index and a belief that it was more uniform for all states than the other possible choice. In Wisconsin, where our personal knowledge of the counties is greatest, it was found that the lowest quartile coincided highly with the designated "problem area" of the state, and the upper quartile covered the popularly known prosperous farm counties.

fertility for the three census periods 1920, 1930 and 1940, but encountered difficulties because of the limitations of the census data. Even though the division between farm and rural population was made by the Bureau of the Census in 1920, the published content of the farm population statistics varies in each of the succeeding census periods, making it impossible to draw true farm family comparisons for the three periods. Definitions of "rural" will be encountered in appropriate places in the manuscript. We have disregarded the under-registration of all age groups because there is not sufficient agreement concerning the necessary correction factor.²

In this study of fertility we have employed the index of female net reproduction for all states, and, for Wisconsin only, the female net reproduction rate and the male replacement rate.

The method of computing the female net reproduction rate is too well known to need elaboration. Inasmuch as we were able to secure rural births by age of mother for the separate counties of Wisconsin for only 1940, the rate computed by the direct method is given below.

The index of net reproduction is useful when data for births by age of mother are not available. Further, it has a value intermediate between the gross reproduction rate, so commonly employed, and the net reproduction rate.

Obviously, if complete data are not available, and for practical purposes they never are, substitute replacement rates have to be computed. The index of net reproduction is affected by birth and death rates of children under five years of age, by disturbance of the age composition of these children because of migration, by under-enumeration of children under 5 years, and by approximations in the assumptions on which it is based.³ In spite of the limitations the index of net reproduction appears to be about as accurate an approximation of the true net reproduction rate as it is possible to compute.⁴

² The correction factor of 1.0460 for the under-enumeration of white children under 5 years of age as employed by the Bureau of the Census in its estimate of net reproduction for 1940, seems to us unduly high for the Midwest and not in agreement with the opinion of staff members of some of the midwest state vital statistics offices. It would be penalizing those states if we apply the correction factor based on the national average.

³ Cf. Margaret J. Hagood, *Statistics for Sociologists*, Reynal and Hitchcock, Inc., New York, 1941, p. 894.

⁴ Glass makes the following comments on this point: "It may thus be concluded

In computing the index of net reproduction it was necessary to first calculate a permanent replacement quota for each of our populations. The quota turned out to be relatively inelastic, as statisticians have pointed out. For example, we found it ranged from a value of 356 to 369, or a range of only 3.6 percent, which in turn caused a maximum variation of only 0.5 percent in the index of net reproduction. Nevertheless, a permanent replacement quota (the ratio of children under 5 to 1,000 women ages 15-44 necessary to maintain a stationary population) was computed for each region in which a state was found as well as for each decade. The sex ratio we used was based on children under five in each unit of universe, as for example, Wisconsin upper quartile counties, rural-farm, 1940. Survival rates were based on United States Abridged Life Tables 1930-39, released by the Bureau of the Census in 1942.

The farm male replacement rate is "the change, in any particular year, in the number of persons in the productive age groups due to the survivals from births in past years to the first year of productive age, less the deaths within the productive ages during the current year, less the number who pass annually beyond the last year of productive age."⁶ We chose the years between 20 and 60 as the productive years, thinking the former is the year that boys in Wisconsin should enter farming and the latter as the age when operators normally retire from active operation of the farm. Others might have chosen the ages 18 to 65 as Woofter did, but the choice in the years does not seriously alter the calculated rate. Mortality rates for ages 20 to 60 were taken from the United States Abridged Life Tables, 1939-41, and only the white male rates were employed. The same death rates were applied to calculate the replacement rates for 1940 and 1950. The net migration rates for specific age groups for the decade 1930-40 were employed to calculate the 1940 rate, and the same rate of migration was assumed to continue for the decade 1940-50 to calculate the 1950 rates. The assumptions employed are open to the usual criticism to which all assumptions are subject.

that, in practice, substitute net reproduction rates, or *index of net reproduction as others call the rate*, will provide the most accurate estimate of reproduction trends when the distribution of births by the age of mother is not given." D. V. Glass, *Population, Policies and Movements in Europe*, Oxford Press, London, 1940, p. 398. (Italics ours.)

⁶ T. J. Woofter, "Replacement Rates in the Productive Ages," *Milbank Memorial Fund Quarterly*, Vol. XV, No. 4, October 1937, New York.

Results of the Analysis

Except for a slight upsurge in 1940 in Minnesota and Iowa, there has been a steady decline in the rural birth rate among Mid-western farm families the past three decades. The highest crude rate of 23.3 prevailed in Minnesota in 1920, and the lowest rate of 16.2 prevailed in Illinois in 1940. The influence of immigration upon population growth in 1940 was a minor one in contrast to earlier years. This change has in turn altered the age and sex composition of the population. Mortality, especially infant mortality has been radically lowered over this span of years. To allow for the changing influence of age and sex composition and mortality, we turn to the index of net reproduction.

TABLE 1. CONSTRUCTION OF A STATIONARY WHITE POPULATION OF 1,000,000 FOR IOWA, RURAL FARM UPPER QUARTILE, 1930

Age groups	(a) nL_{xm}	(b) $nL_{xm}^1 = .0862029$ nL_{xm}	(c) nL_{xf}	(d) $nL_{xf}^1 = .0826907$ nL_{xf}
15-19	438,960	37,840	449,310	37,154
20-24	431,550	37,201	442,090	36,557
25-29	422,910	36,456	433,120	35,815
30-34	413,560	35,650	423,680	35,034
35-39	402,330	34,682	413,130	34,162
40-44	388,470	33,487	400,950	33,155
TOTALS	2,497,780	215,316	2,562,280	211,877
Under 5	459,250	39,589	466,830	38,603
All Ages	5,785,580	498,734	6,061,940	501,266

(a) Number of white males in each age group according to United States Abridged Life Tables 1920-29.

(b) Number of white males in stationary million according to the sex ratio of the Iowa rural farm white population in 1930.

(c) Same data for white females as in column (a).

(d) Same data for white females as in column (b).

Following Hagood⁶ and Glass,⁷ Table 1 illustrates the construction of a stationary white rural farm population in Iowa for 1930, Upper Quartile, basic to the computation of the index, which procedure was necessary for each of the states and sub-groups studied.

With a rural farm white sex ratio of 1.042474 for Iowa in 1930, calculating the value of L_{xm} we have:

⁶ *Op. cit.*, pp. 883-888.

⁷ *Op. cit.*, pp. 387-399.

$$L_{xm}^1 = \frac{1,042,474}{1,042,474(5,785,580) + 6,061,940} L_{xm}$$

$$= .0862029 L_{xm}$$

and

$$L_{xf}^1 = \frac{1,000,000}{1,042,474(5,785,580) + 6,061,940} L_{xf}$$

$$= .08269071 L_{xf}$$

The observed effective fertility ratio, for the rural farm white population, Upper Quartile, of Iowa for 1930, computed from the data of the Census, is

$$\frac{28,770}{58,246} \times 1,000 = 493.9$$

Continuing the arithmetic, the permanent replacement ratio becomes:

$$\frac{78,192}{211,877} \times 1,000 = 369.0.$$

The index of net reproduction being the ratio of the effective fertility ratio to the permanent replacement quota, we have the final result of

$$\frac{493.9}{369.0} = 1.34.$$

Continuing the foregoing process the effective fertility ratio and the index of net reproduction for each state, and sub-group within the states, are shown in Tables 2, 3 and 4. The current definition of "rural" as used by the Bureau of the Census applies in these tables.

TABLE 2. INDEX OF NET REPRODUCTION FOR THE RURAL AND RURAL FARM WHITE POPULATIONS OF FOUR MIDWESTERN STATES AND NEW YORK, 1920*

Population area	Effective fertility ratio		Index of net reproduction	
	Rural	Farm	Rural	Farm
Minnesota	572.6	608.5	1.48	1.57
Wisconsin	563.5	598.6	1.46	1.55
Iowa	523.4	577.5	1.35	1.49
Illinois	503.5	521.7	1.30	1.35
New York	446.1	465.5	1.15	1.20

* See page 464.

TABLE 3. INDEX OF NET REPRODUCTION FOR THE RURAL AND RURAL FARM WHITE POPULATIONS OF FOUR MIDWESTERN STATES AND NEW YORK, 1930

Population area	Effective fertility ratio		Index of net reproduction	
	Rural	Farm	Rural	Farm
Minnesota	490.0	528.0	1.33	1.43
Upper Quartile	486.0	525.0	1.32	1.42
Lower Quartile	577.0	593.0	1.56	1.61
Wisconsin	496.0	525.0	1.34	1.42
Upper Quartile	464.0	492.0	1.26	1.33
Lower Quartile	534.0	519.0	1.45	1.41
Iowa	456.5	498.0	1.23	1.35
Upper Quartile	456.2	493.9	1.24	1.34
Lower Quartile	469.8	504.7	1.27	1.37
Illinois	435.9	460.5	1.18	1.25
Upper Quartile	437.2	471.7	1.18	1.28
Lower Quartile	433.9	498.7	1.31	1.35
New York	408.7	447.9	1.11	1.21
Upper Quartile	369.2	404.4	1.00	1.09
Lower Quartile	467.3	496.0	1.26	1.34

TABLE 4. INDEX OF NET REPRODUCTION FOR THE RURAL AND RURAL FARM WHITE POPULATIONS OF FOUR MIDWESTERN STATES AND NEW YORK, 1940*

Population area	Effective fertility ratio		Index of net reproduction	
	Rural	Farm	Rural	Farm
Minnesota	450.0	490.0	1.26	1.37
Upper Quartile	438.0	465.0	1.23	1.30
Lower Quartile	507.0	540.0	1.42	1.51
Wisconsin	443.0	467.0	1.24	1.32
Upper Quartile	413.5	440.0	1.18	1.24
Lower Quartile	482.0	490.0	1.33	1.37
Iowa	418.5	445.0	1.16	1.24
Upper Quartile	407.4	439.3	1.13	1.21
Lower Quartile	431.8	451.5	1.20	1.26
Illinois	388.2	410.1	1.07	1.13
Upper Quartile	373.5	392.5	1.04	1.08
Lower Quartile	432.0	454.0	1.19	1.25
New York	333.0	385.2	0.94	1.07
Upper Quartile	293.7	326.0	0.82	0.91
Lower Quartile	423.4	448.1	1.19	1.25

* Because the permanent replacement ratio is inelastic (see p. 461) and to conserve time, the ratio computed by Lorimer and Osborn for the white population of the United States for 1920 was used for the states in this study in computing the index of net reproduction for that same year. See Frank Lorimer and Frederick Osborn, *Dynamics of Population*, Macmillan Co., New York, 1934, p. 356.

From Tables 2, 3 and 4 it will be noted that of the 70 separate indices of net reproduction, only three are slightly out of line. In other words, starting with the highest rate, 1.61 (Minnesota farm, 1930, lower quartile⁸) in the newest of the states historically, the least advanced in the processes of acculturation, there is a straight line decline, with only a few minor fluctuations, until the state in the oldest point on the continuum of historical, economic, social and cultural processes is reached, New York with a rate of 0.82 in 1940. The rate of 1.61 in Minnesota is for the segment of counties in the lowest quartile economically of the farm population. The rate of 0.82 in New York is for the segment of counties in the highest quartile economically of the rural population. The two rates represent the opposite extremes on our cultural continuum. In the lowest extremity are located the families who are in the least favorable economic position.⁹ Theirs is the area which is the newest on our historical scene, they are the families the farthest removed from cities in terms of mileage, they are the least mobile and have the fewest contacts with urban culture. As we proceed on the continuum from quartile to quartile within the farm population, and from the farm groups to the rural, and from Minnesota to New York, the index of net reproduction diminishes in value.

The data show clearly that the differences between the behavior of farm families and rural families, insofar as their fertility index reveals, are rapidly disappearing. For example, the farm families in the upper quartiles of the scales had differences of $+.10$, $+.11$, $+.11$, $-.01$, $-.02$ points in their indices compared to the total of rural families in the respective states in 1930, in 1940 these same differences dropped to $+.01$, $+.05$, $+.04$, 0 , $-.03$. When the upper quartile farm families are compared to the upper quartile rural families in 1930, the differences are $+.10$, $+.10$, $+.10$, $+.07$, $+.09$; in 1940 the differences fall to $+.04$, $+.08$, $+.07$, $+.06$, $+.11$.

⁸ Because the required census data were not available in 1920 to permit segregation of the states by counties, it was not possible to make exact comparisons by quartiles for this period. The difference in the index of fertility between the lower quartile of the Minnesota farm population and the state average in 1940 was 0.14. In 1930 it was 0.18. In all probability the difference in 1920 was at least 0.18, resulting in an index of 1.75 for the lower quartile farm population of Minnesota in this year. New York was added to our calculations to make them more precise. New York was the largest contributor of the eastern states in the settlement history of the middle west in the early 19th century.

⁹ We make this statement with caution because we have no accurate measure of differences in economic worth for the farm and non-farm populations.

In short, whereas a breakdown between the urban, the rural farm and rural families segregated meaningful socio-cultural groups in the earlier decades, this is no longer so true. The uniqueness of farming as an occupation, as a way of life, is disappearing. From other studies we know that the social and personal social behavior of farm families has undergone a rapid change in the past generation. Hence, some of the current descriptions of rural society, undoubtedly valid for an earlier epoch of American agriculture, have lost their accuracy.¹⁰

A computation of the true net reproduction rate is possible only for Wisconsin and only for 1940 rural. This was the only area for which data were available showing births by age of mother. The rate for the rural population of the state as a whole in 1940 was 1.23 and for the upper and lower quartiles it was 1.14 and 1.30 respectively. Comparing these rates with the index of net reproduction for the same population and for the same period, it will be noted that in each case the true rate is lower, but very close to the calculated index. This corroborates our earlier statement that the index should fall between the net and gross reproduction rates.

The foregoing discussion has all been in terms of female rates. Turning to the male replacement rate for Wisconsin (the method for its computation was described on page 462), we note some interesting developments. Although 1940 is now an historical date, we computed the rate for that year, which turned out to be 1.25. Translating this rate into actual figures, this meant that, allowing for deaths of males between the ages 20 to 60 years of age in the decade 1930-40, there were 3,052 more white males who entered into the cohort at the lower age of 20 than passed out through the upper age of 60 by age or death.

¹⁰ The following quotations are typical of the anachronisms found in almost all texts in rural sociology. "The narrower area of the interaction system of its members . . . predominance of personal and relatively durable relations . . . comparative simplicity and sincerity of relations." Pitrim Sorokin and Carle C. Zimmerman, *Principles of Rural-Urban Sociology*, Henry Holt & Co., New York, 1929, p. 57; "Rural farm populations . . . are void of most of the exciting stimuli to family irregularity which obtain in large places. . . . In no other part of the great society does the family retain and demand socio-economic integrity as among scattered farming people." John M. Gillette, *Rural Sociology*, Macmillan Co., New York, 1936, pp. 266-268; "The American mode of dwelling in scattered farmsteads has made of the family an unusually strong, effective, and self-sufficient economic and social unit. While forces have been at work completely severing the ties of family and occupation in practically every other vocation, they have largely passed by agriculture." Newell L. Sims, *Elements of Sociology*, Thomas Y. Crowell Co., New York, 1940, p. 507.

Following the same technique for 1950, but disregarding migration, the rate was calculated to be 0.86, or a reduction of 31.2 percent in ten years. This means an "excess" of 2,360 white males 20 years of age.

In the computation of the foregoing rate there is little room for error, because all of the events, except death, are already biologically set, it is only necessary to count them. The only artificial element is the assumed death rate, but the probabilities of its accuracy are too high to allow for much chance error. On the basis of the figures, therefore, it may seem that there is no doubt about Wisconsin farmers actually reproducing enough sons to assure a supply of successors to themselves. It is unfortunate that we cannot break down these data according to the upper and lower quartiles as in the remainder of this study, because there is sufficient evidence to support the belief that the "excess" comes mostly from the low economic quartile, and that some of the counties in the upper quartile are facing an actual deficit in 1950 if migration were to continue at the prevailing rates.

Not all farm boys remain on farms regardless of the economic level of the home farm. If we assume that the rate of off-farm migration in the decade 1940-50 will be of the same magnitude as in the 1930-40 decade in all age intervals, then the 1950 male replacement ratio drops to 0.11.¹¹ In terms of men, this means that the difference in the number of young men who will be ready to take up farming, and the number who will pass off the stage through old age or death, will be only 315. Certainly this is not much insurance for the future and the future (1950) is less than four years hence. Furthermore, if we had the county data available, our guess is it would show that all of the counties in the high quartile group will have to look for migrating sons of farmers from the low quartile group to make up the deficit that their own low fertility is causing.

Conclusions

With all due consideration to the limitations in the present study, and the readers know by now that they are many, the down-

¹¹ In reality both the volume and rate of migration from the farms of the war years was the greatest in history. Whether it will remain high for the rest of the decade will depend upon urban employment opportunities. It would appear to us that the net loss of farm population will undoubtedly be greater this decade than last. Hence the estimate of migration may prove to be conservative and the "excess" of 315 may be more than erased.

ward trend of farm family fertility in our midst is unmistakable. It is following the pattern laid down with the industrialization and urbanization of western and northern Europe. The rate of change from a high to a low fertility is unrelenting, but here and there are points along the continuum that are more resistant to the erosiveness of sterility than others. These areas of concentration reflect the relative inelasticity of certain cultures. Some religious and nationality groups cling more tenaciously to the values inherent in their culture than others.

The varying rates of change which we have observed lead us to believe that when a people breaks loose from its deeply-seated cultural values, the contrasting culture types lose their unique group characteristics, and they are individually more susceptible to the less traditional but no less compelling social and personal ideas. Among Wisconsin farm families it is not so long ago that one of German or Norwegian nationality for instance, stood out from among the rest, and his social behavior could be related to a well-defined nationality pattern. The same has been true of the religious aspects of culture. Varying degrees of social contacts caused by differences in proximity to cities and in differences in the degree of concentration of the religious or nationality groups in question, and the desire to belong to and participate in status-giving organizations, the desire for modernization of the home and its conveniences, increased spatial mobility as reflected in the greater amount of leisure time and travel—all these are among the factors that have a definite influence on the growing practice of family limitation, regardless of the religious or nationality background.¹²

The index of net reproduction that we have computed does not mean that American agriculture is faced with an imminent decline of population. The index is based on certain logical assumptions. It "described the numerical relationship between the potentially

¹² For evidence on these points see: Walter L. Slocum, *Ethnic Stocks as Culture Types in Rural Wisconsin*; Harold T. Christensen, *Population Pressure Among Wisconsin Farmers*; Rockwell C. Smith, *Church Affiliations as Social Differentiator in Rural Wisconsin*; and Oscar F. Hoffman, *A Culture or Folk Study of Rural-Farm German Americans in Eastern Wisconsin*, doctoral dissertations filed in 1940, 1941 and (2) 1942, respectively. The most recent and by far, the most penetrating, study in which the greater fertility of Catholic families is established is currently being described in articles on "Social and Psychological Factors Affecting Fertility," by P. K. Whelpton and Clyde V. Kiser, *The Milbank Memorial Fund Quarterly*, Vol. XXI, July 1943; Vol. XXII, January 1944; Vol. XXIII, July and October 1945; and Vol. XXIV, January 1946. This study is based on an exhaustive analysis of the fertility records of 41,498 wives living in Indianapolis, Indiana.

fertile women in one generation and those of the next, assuming the maintenance of the given conditions of fertility and mortality."¹³ If these assumptions hold true and if existing migration patterns are not severely changed, we know within limits the probable structure of our future population and it is this knowledge that we are after. We are not interested in estimating future population growth because an estimate is but "a description of the end results of the assumptions made" as the populationist, Dr. Charles has said.¹⁴ Our position and purpose in making this general study is well stated by Landis, who, after discussing the limitations of long-time prediction of population growth on the part of the sociologist, says, "Although a socio-cultural approach removes any easy possibility of formulating universal generalizations or laws regarding behavior, it does make possible a more realistic understanding of a population group."¹⁵

A realistic understanding of population growth is basic to any rational economic and social planning in agriculture. Furthermore, a democracy demands a positive approach to population policy in agriculture planning it cannot be negative,¹⁶ neither can it be revivalistic.¹⁷

To return to the economic aspects of our problem, it is clear that farm families who should be the most able to provide their children with social and economic advantages most of us agree as being desirable to a good upbringing, are the very ones who are having the fewest, if any, children. Most of the upper quartile counties of the states included in this analysis are located in the dairy area of Southern Wisconsin, Minnesota and Central New York where net farm incomes per family farm averaged close to \$4,000 in 1945. The same quartile counties in the corn belt of Illinois and Iowa likewise averaged about \$4,000 in net farm income for the same year.¹⁸

Notwithstanding our declining rate of growth, we in the United

¹³ Glass, *op. cit.*, p. 405.

¹⁴ Enid Charles, "Differential Fertility in Canada," *Canadian Journal of Economics and Political Science*, Toronto, Vol. 9, No. 2, May 1943, p. 176.

¹⁵ Paul H. Landis, *Population Problems*, American Book Co., New York, 1943, p. 46. (Italics ours.)

¹⁶ A position sometimes taken by extreme geneticists and eugenicists, e.g., Guy Irving Burch, *et al.*, *Population Roads to Peace or War*, Population Reference Bureau, Washington, D. C., 1945.

¹⁷ Cf. O. E. Baker, "The Effect of Recent Public Policies on the Future Population Prospect," *Rural Sociology*, Vol. 2, June 1937, pp. 123-141.

¹⁸ *Typical Family Operated Farms, 1930-45*, Bureau of Agricultural Economics, United States Department of Agriculture, April 1946.

States are not yet faced with the need of finding means of stimulating the growth of our population.¹⁹ Many countries have tried, but all unsuccessfully to revitalize a population having a low fertility. Governments have found that people cannot be bribed nor bludgeoned into having children when they do not want them. People in a democracy sanction and support positive social action. It follows therefore that judicious policy should be to concentrate on raising the standards of living of the segment of our agricultural population which is bearing the children who will be the farmers of tomorrow. In this sense we would sharpen the recommendations of the report, *Post Agricultural Policy*,²⁰ and go even farther than Professor Schultz does in his comments on this report.²¹

Pushing the thesis of both of the foregoing reports farther, we maintain that the farmers in the higher economic quartiles have a genuine stake in the welfare of those in the lower quartiles. Greater effort needs to be made to the end that the farm boy who will be reared by the lower quartile family, but who will be forced to migrate and eventually assume the management of the economically larger farm, will have the physical, the mental, and the social equipment to enable him to keep up the managerial standards of the larger farm. Likewise, some of the farm girls from the most fertile lower quartile will be required as wives for the diminishing number of young men in the upper quartiles, and they, too, should therefore have the training and bio-social resources which only a higher standard of living than that which they now have can give them.

Primogeniture as a technique of handing down farms is made

¹⁹ The net reproduction rate of the United States has risen from 1.024 in 1940 to 1.138 by 1945, because of the war-inspired increase in the birth rate, but there is no reason to suspect that this upward trend is anything more than a temporary phenomenon and that the long-time reproduction trend is downward. "A false optimism may prevail regarding the size of our future population as a result of the fact that the observed rate of natural increase in the past four years has been in excess of 1 percent per annum. It should be emphasized that this measure is a misleading index of the course of population growth. Our present population has a high proportion of women in the reproductive ages, a situation which is necessarily only temporary, and in time will pass. When allowance is made for this fact—by taking into account mortality rates and reproduction rates specific for age—we have the 'true' rate of natural increase, which is generally much below the observed rate." Metropolitan Life Insurance Company, *Statistical Bulletin*, Vol. 27, No. 4, April 1946.

²⁰ *Postwar Agricultural Policy*, Report of the Committee on Postwar Agricultural Policy of the Association of Land Grant Colleges and Universities, October, 1944.

²¹ Theodore W. Schultz, *Agriculture in an Unstable Economy*, McGraw-Hill Book Company, New York, 1945, pp. 207–208. This is one field in which there is room for action "within" agriculture, to follow the division employed by Schultz.

easier and becomes more in order with each succeeding year of lowered population growth and smaller families. The practice offers social and economic advantages that the economically successful farmer would do well to consider more seriously than he has, if he is to keep his only son on the farm.²²

The increasing mechanization of American agriculture, at first thought, may be more than offsetting the influence of declining population fertility on the agricultural labor force. It is inevitable that "technical progress means that fewer workers are required in agriculture," and successful, modern farming requires less brawn and more brains than the farming of a generation ago.²³

Not all of the new farming methods will displace labor. Some may even require more labor; most of them will surely demand a higher type of labor than the marginal (marginal in terms of ability and in the duration of the seasonal employment) worker employed in the cultivation and harvest of cotton, tobacco, peanuts, sugar cane, and sugar beets. These are some of the crops that are imminently facing increased mechanization, and with only one exception they are concentrated in the areas of greatest rural population density.

Increased mechanization, therefore, will release labor in the largest numbers from the three southern census geographic divisions where the gross production per agricultural worker is consistently less than half that of workers in other regions and where about half of all farm workers in the Nation reside.²⁴ Stating the implications in another form, in areas such as the deep South principally will mechanization and replacement of labor offset the lowering of the size of the labor force caused by the declining fertility of farm families.

How many of the farm operators and laborers from this group will be available as laborers on other farms after their displacement,

²² See Kenneth H. Parsons and Eliot O. Waples, *Keeping the Farm in the Family*, Research Bulletin 157, Agricultural Experiment Station, University of Wisconsin, September, 1945, for an analysis of the processes of farm ownership in a restricted low tenancy area of Wisconsin.

²³ Sherman E. Johnson, *Changes in Farming in War and Peace*, United States Department of Agriculture, Washington, D. C., June 1946, pp. 57 and 61. Dr. Johnson's description of the post-war power farm envisages revolutionary management practices in the farm plant that are bound to have repercussions on the farm family, the institutions of rural society, and even upon the general economy of the nation. The problems of conflict that will arise in the period of accommodation should challenge the interest of every social scientist in agriculture.

²⁴ *Ibid.*, pp. 59-60.

is open to conjecture.²⁵ Certainly, many of them will turn to other industries, some of them may also form the vanguard of emigrating rural Americans seeking security in other lands, in Canada and in South America. If the post-war plans of some of the South American republics are even partially completed politically, large areas of land will be thrown open for settlement on more attractive financial and social terms than were available to many European peasants whose offspring now help to make up our American farm population.

The chronic nature of the agricultural labor shortage in other than the three foregoing divisions of the country, in areas that are now highly mechanized, is some evidence of the disappearance of the "surplus" of rural population about which so much has been written. A proportion of the former agricultural workers who were among the 5,000,000 farm people who moved out of agriculture in the years 1940-44, will return and will be available again for farm employment. Likewise, many of the millions who left the towns and villages of the rural areas will return and will again help swell the seasonal agricultural employment force. The aggregate, however, is diminishing and each succeeding year finds the farm employer paying more to attract the available labor; paying more not necessarily in wages alone, but also in better housing, more favorable working conditions, shorter hours, medical care, recreational facilities, and improved employer-employee relations.²⁶

The long time trend in the decreasing number of farms and the increasing size of farms through farm consolidation, is another result of the processes of mechanization. But here again there will be no unilateral, national pattern. Certain areas only of our nation will feel this change to any marked degree. The greatest impact will be felt in the southern region previously referred to, and in other marginal soil areas of the Nation where small farms are the rule. Likewise the long time trend may be reversed for a time because of the return of war veterans and industrial workers to the abandoned or temporarily closed farms in these areas, if the current resettlement

²⁵ Group II of the four classifications adopted by the House Special Committee on Postwar Economic Policy and Planning, House Report No. 2728, 79th Congress, 2d Session.

²⁶ The Bureau of Agricultural Economics reports that as of July 1, 1946, 1,045,000 veterans of World War II were employed on farms, and that this number represents slightly more than three-fourths of the number of farm workers who enlisted or were inducted in the armed forces up to July 1, 1945.

activity in the cut-over portion of Wisconsin is typical of other similar areas.²⁷

Finally, mechanization will have a still differing influence on the farmers of the higher economic quartiles in the area of the present study. Unless the forces of a depression cause him to do otherwise, we believe the commercial farmer will

"retain some of the real benefits from agricultural improvement by slackening the pace of farm work and increasing the leisure time available for the farm family, and invest increased earnings in education and health, and in home conveniences."²⁸

Furthermore, the daylight to dark fourteen to sixteen-hour day, which even now is but a myth on most of our farms, will come in for considerable shortening. Just as industry is adjusting to a forty-hour week, and thinking in terms of thirty, so farming faces the adjustment to a reasonable work week. We, therefore, should expect the lightening of labor tasks for both hired help and the operator rather than any large scale and immediate substitution of machine power for hand labor in most of our heavy farm producing regions, unless our total national economy is willing to undergo a greater revolution than can now be considered rationally feasible.²⁹

Those of us who are responsible for agricultural education must face squarely the implications of a forward-looking population policy. It is not enough that we point out the adjustments that lie ahead for the farmer. It is for us to make sure that the classrooms and the laboratories of our land grant colleges are as accessible to the boys and the girls of farm families in the lower quartiles as they

²⁷ Walter Wilcox has just sounded a warning note against the prevailing opinion in favor of farm consolidation. "When the problem of the small farm is approached from the standpoint of the people rather than the efficient use of man labor and machinery, one finds that these small units are performing a real service to Wisconsin people. The availability of these small acreages equipped with sets of farm buildings give families which prefer the independence and the freedom from worry associated with a small farming enterprise an alternative which they would not have otherwise. Education and other governmental action might better be directed toward increasing the capacity and efficiency of present and prospective small farm operators rather than facilitating the consolidation of small farms. These units permit many families to enjoy a modest standard of living under conditions which suit them better than elsewhere in society. It is questionable whether or not families having these desires and abilities are decreasing as rapidly as are the small farm units." Walter W. Wilcox, "The Economy of Small Farms in Wisconsin," this JOURNAL, Vol. XXVII, No. 2, May 1946, pp. 473-474.

²⁸ Sherman E. Johnson, *op. cit.*, p. 63.

²⁹ The agricultural labor force on August 1, 1946 was 11,044,000 compared to a August average in 1935-39 of 11,515,000. Of these totals, 2,786,000 and 2,983,000 were hired non-family workers in the respective periods. *Farm Labor*, Bureau of Agricultural Economics, United States Department of Agriculture, August 12, 1946.

are to those in the upper. Likewise, we also need to be as faithful in disseminating the facts of farm science through our agricultural extension facilities among the farmers in the low-income areas as we are among those in the high-income areas.

Unless the monographs on farm management, social and economic organization, which we have had opportunity to study since returning to academic work in this country have been atypical, social scientists continue to find it difficult to define problems for study outside the line fences of our blue ribbon farms. Few of them concern themselves with the farm plants and with the families of those who constitute the real seedbed of our farm population. Yet, to fashion an agricultural policy that will be both realistic and that can be made applicable to all of agriculture, we need to have the facts on the farms from whence come our human surpluses as well as on those from whence come our crop and livestock surpluses.

To conclude this long discussion, let us not forget that agriculture as an industry is in an advanced stage of development in our Nation because of the receptivity of farmers in general to new scientific farming ideas. At the same time let us bear in mind that the trend in farm family fertility is stark evidence that farm people are just as ready and willing to accept new *social* ideas, ideas which are becoming a part of their emerging culture and which are influencing their biological behavior. Good judgment, therefore, dictates that the social scientist keep abreast of the rapidly changing idea system of farm people and the resulting new behavior norms.

There is no turning back because the direction of cultural change is forward. We therefore hold no stock with those whose goal is backward and who decry the trend of a declining population because it necessarily leads to a decadent way of life.

Ours is the challenge to stimulate the social mobility of farm people, to give them as wide a horizon of contacts as is true of urban life. Ours is the task of widening the farm-to-market road so that the flow of ideas and people will become a normal two-way process. Only in this manner can we rid farm life of its long-standing disadvantages in education, health, communication, recreation and the other necessary components of full living. And, as a result, agriculture will stand up equally with other vocations for consideration when the young man, whether he be city or farm-reared, chooses and prepares for his life's work.

EVALUATING SOIL CONSERVATION

E. C. WEITZELL*

Bureau of Agricultural Economics

THE Federal government has appropriated more than \$1,871,-576,000¹ in behalf of soil conservation during the past ten years. Most of this amount has been expended for programs designed to retard erosion and depletion, and to rehabilitate the productivity of privately owned farm lands. This emphasizes the great interest that society, or the public, has in the future productivity of the soil. It also emphasizes the question, What is the benefit-return on this large investment?

It is practically impossible to measure precisely the social benefits of numerous conservation measures because of their intangible character, and the uncertain futurity of their occurrence. But in terms of farm operation and management it is important that privately financed measures return a net benefit, and that public investments are made to the greatest advantage from the standpoint of social welfare. Legislators need guides relative to the wisdom of voting appropriations; administrators need valid justification for their activities; creditors need loan justifications; and farmers and taxpayers want to know whether the recommended measures "pay" or not.

With these demands in mind, it is the aim here to take a look at what has been done in the way of evaluating soil conservation, to review other proposed methods of evaluation, and to suggest an alternative approach to the problem of evaluating the production benefits that may accrue as a result of the employment of specific conservation practices and improvements on farm land. Such social benefits as may indirectly accrue are omitted from consideration at this time.

In order to be understood in a practical sense, purely theoretical and academic concepts are avoided. The philosophy and objectives of conservation, as they are more or less generally known, are as-

* The helpful criticism of this article by several associates is gratefully acknowledged, but the author alone is responsible for the opinions and conclusions presented.

¹ Includes total appropriations to the Soil Conservation Service, and that portion of the funds expended by the Agricultural Adjustment Administration and its successors for the purpose of conservation, from 1937 to 1946, inclusive; but excludes "adjustment and conservation" payments, in the amount of \$2,441,698,000, made by the latter agency during the same period.

sumed to be valid. But it is not presumed that all recommended measures and practices are necessarily *economically effective*. This gives rise to the need for evaluating procedures. This appraisal of methodology and procedures is designed to point the way toward improvements in evaluations of this character.

Measuring Soil Conservation

In order to determine the economic effectiveness of measures and practices designed to achieve soil conservation, it is first necessary to identify and describe the attributes or benefits that are to be evaluated or compared with costs. Heretofore confusion in this regard has led analysts to propose that conservation is good farm management. It is true that successful conservation depends on good farm management, and must conform thereto. However, in order to measure the effects of conservation it is first necessary to decide what constitutes conservation *per se*, apart from the overall character of farm management. Those particular practices which are to be considered soil conservation must be specified, so that their results may be identified and measured.

For this purpose, it is suggested that the following practices and installations be tentatively considered as being the primary components of soil conservation:

strip-cropping	gully control dams
sod-waterways	diversion ditches
vegetative plantings	terraces
cover crops	stream bank structures
	contour furrows
	forest fire controls
	mulching

Another group of practices may be soil conservation, depending on whether their primary purpose is to enhance immediate productivity or to accomplish a reduction in soil and water losses over a period of time. In fact they may have dual or joint aims. These include:

type of farming adjustments	fertilization
landuse adjustments	liming
pasture rotation	legume planting
crop rotation	tree planting
green-manure crops	stream straightening
stock water ponds	farm fencing

Still another group of practices have commonly been associated with soil conservation programs. In some instances they may be complementary, but in general they cannot be classed as contributing directly to soil conservation. This group includes:

wild-life programs	drainage
improved varieties	improved farm management
pasture mowing	forest management

The direct results of those practices which contribute to soil and water conservation may be termed the "conservation attributes" (gains or losses), which it is desirable to measure as a basis for evaluating the costs and benefits involved. Presumably these attributes will be:²

- (a) reductions in soil losses
- (b) reductions in plant nutrient leaching
- (c) reductions in soil water losses

To the extent that the practices enumerated in the three groups above, either singularly or in combination, produce these attributes they may be classed as soil conservation practices.³ If they do not influence soil, nutrient, and water losses there is no basis for including them as conservation. Any complementary or supplementary measures must be appraised in their own right, according to the results produced.

The above attributes may be measured in two ways. First, they may be measured in terms of tons of soil, chemical content, and moisture content. Then it is necessary to convert them to crop and livestock yields, either hypothetically or by actual field practice, according to the "time-pattern" which will characterize their occurrence. The time-pattern of occurrence is important because it may determine the practicability of the specific measure under certain circumstances, and whether the attribute will accrue to private or social interests. Thus, a basis for allocating costs to private property owners and to public interests may be developed.

It is probable that the benefits of conservation will accrue as a

² Recent work may prove that the maintenance of "soil structure," in some locations, should be an important aim of conservation, in behalf of future productivity. Organic content and other factors may influence soil structure materially.

³ The common objection to the evaluation of any practice or combination of practices independent of the "complete conservation farm plan for the entire farm unit" leads one to inquire what the complete plan is. It must be a combination of practices, but let it be ascertained that all are capable of producing significant soil and water conservation benefits. This is the crux of the evaluation problem.

variable "flow". The pattern of accrual may be determined by the time required to achieve the full effect of any particular combination of practices; and the variation in climatic conditions which may or may not give rise to a benefit from certain practices. After sufficient testing it may be possible to develop average annual benefits that may reasonably be expected from any single practice, or from two or more practices in combination. It is important, however, that the occurrence of benefits as a variable "flow" be recognized in order that measurement techniques may be fashioned accordingly. Otherwise, attempts to measure conservation benefits may not be valid.

Exceptions or variations in procedure may be necessary in the case of benefits accruing in the form of reductions in sedimentation on roads, increases in the flow of springs, and reduced reservoir siltation. These may be measured as labor units necessary for removal, gallons of water, and reduced replacement costs, respectively. Money values may then be applied directly.

These examples illustrate the wide variation in types of benefits that may be claimed for conservation programs. Some may be direct or indirect, tangible or intangible. To cover all these ramifications is more than can be done in a brief article. Consequently, it is desirable to limit this discussion to those attributes of soil conservation which are expected to accrue to farmers, and that may be measured in terms of crop yields, livestock production, and in turn, farm incomes.

Methods Employed

The major attempt to measure the economic value of soil conservation *per se* was made by the Economic Research Division, Soil Conservation Service, in cooperation with the Bureau of Agricultural Economics and about seventeen State Agricultural Experiment Stations. The objective, as stated in project agreements, was to "measure the effects of a definitely planned program of soil and water conservation." The general course that was followed might be termed the "historical", or the "before and after" method.

Historical Method

The procedure was to obtain records of farm practices, production, and income from farmers, by survey schedules or cost-account

records, before the adoption of soil conservation practices and then to obtain like records on an annual or periodic basis afterward. By this procedure it was intended that the effects of the programs could be measured in terms of changed practices and farm or labor income. A variation of this procedure also was employed widely. Farms for which planned conservation programs were contracted on a 5-year basis (cooperators) were compared with farms having no contracts (non-cooperators), in the project demonstration areas.

The weaknesses in these methods are quickly evident. Collier has pointed them out.⁴ They are reviewed here briefly in order to facilitate comparisons, and as a basis for completing the list. *First*, variations in climate, prices, costs, marketing conditions, and other similar factors seriously distort any series of yield or income comparisons, on which the historical procedure depends. These effects are likely to be greater than any effects of conservation. This has been proved to be the case, even over periods of five and ten years. In other words, the effects of conservation cannot be isolated from the effects of other non-related factors. *Second*, changes in management, production intensity, size of operating units, and types of farming cause similar variations in yields and income which cause income fluctuations that cover up any possible effects of conservation. *Third*, the comparisons of "cooperators" and "non-cooperators" in any specific year or over time brings into the picture even greater difficulties, in the form of fundamental differences in the character of the two groups of farms, wide variations in levels of management, the kinds of practices employed, and variations in the initial need for conservation. These factors are extremely important when the objective is to determine the extent to which the applied program may be reaching the most acute problem farms. Cooperators may be a group distinct in many ways when compared to non-cooperators.⁵

The favorable features of the "before and after" approach are (a) the value of following an identical physical unit; (b) the possibility of following a variable flow of benefits through a period of years; (c) the possibility of observing the impact of a specific program in terms of its relation to the overall management program,

⁴ George W. Collier, "Procedures for Studying the Returns from Conservation Farming," this JOURNAL, August 1945, pp. 686-688.

⁵ E. C. Weitzell, "Economics of Soil Conservation in West Virginia," West Virginia Agric. Exp't. Sta. Bul. 305, p. 31.

and the farmers' general reaction to it. This third point has been upheld as an important aspect of the application of conservation practices, and was the basis for early decisions that conservation might be measured through farm income, as the final product of the combined influences. There is reason to believe, however, that this is not of substantial importance if the practice *per se* is profitable either in the present or in the foreseeable future. Except for certain changes in working habits, and the essentiality of certain technical knowledge and skills, the application of any specific conservation practice is little different from the introduction of hybrid seed corn or similar innovations. In any event, each specific practice or segment of a program must be separately profitable before acceptance and application is feasible.

Other than economic significance, the additional factors that might be important are seasonality of application, time required, feasibility of land-use adjustments in terms of land available and type of farming, and the pressure of time preference. In general, these are considerations to be ironed out in farm planning. They may or may not be important. For example, Tom, reporting from New York,⁶ cites evidence that the extra time required for strip-cropping is not significant in terms of causing inefficiency. Research in West Virginia⁷ indicates that a lack of ability to make land-use adjustments in favor of conservation, and time preference for consumption income, are two extremely important factors in achieving the application of conservation farming. This type of consideration we repeat, is a matter of farm planning and is not included in the present study of methodology, except as it might affect the cost-benefit character of a specific conservation practice which is to be evaluated.

Budget Method

Sometime after the above described procedures had been carried along as operating projects in several locations, the leaders of the work began to recognize some of the weaknesses involved. Moreover, other interests began to exert pressure to obtain more immediate proof that conservation programs were highly advantageous to farmers. As a result the "budget" method was advanced. Pro-

⁶ C. A. Tom, *Time Requirements and Costs of Farm Operation on Strip-Cropped and Non-Strip-Cropped Fields*, New York State College of Agriculture, A.E. 329, 1940.

⁷ E. C. Weitzell, *op. cit.*, pp. 55-56.

ponents of the change insisted that this method eliminated many of the criticisms of the historical method, and immediate results could be determined. In addition, there was a definite trend of thinking away from measuring the economic effects toward "advance estimates" as aids to planning farms for conservation.⁸

The procedure was: *First* to obtain farm or labor income schedules, including any additional land-use and practice data deemed essential for the farms to be conserved; *Second*, to obtain the proposed programs of conservation for the same farms; *Third*, the changes made necessary by the program would be made in the existing land-use and practice picture; and *finally*, a financial budget would be developed showing the projected effects of the conservation program on farm income.

The major handicap of this method was that sufficient information was not at hand for carrying through the final step.⁹ No one knew what the results would be under the various circumstances encountered when budgeting farms in different locations, of different physical characteristics, and of different types. In fact, insufficient information was available for even a limited use of budgets. To a large extent, the same is true today.

Other criticisms of this procedure are: (a) Considerable degrees of judgment are involved and this frequently causes bias in results. (b) Experience indicates a tendency to exaggerate the results of conservation, which comes about by reason of the effort to follow them through the maze of other variables which normally may obscure even significant effects. (c) There is always the tendency to follow standards or ideals, rather than actual practices. (d) The process is laborious if a high degree of essential detail is involved. And (e) the budget method retains the practical impossibility of measuring minor economic effects through the medium of comprehensive income statements.

From the standpoint of sampling, the original schedules may be obtained from representative farms, following any one of a variety of sampling procedures, depending on the availability of projected or recommended conservation programs for the same farm. In this respect the historical and budget methods are similarly acceptable.

⁸ Neil W. Johnson, *Analysis of the Present Program of Research in the Economics of Soil Conservation, and Suggestions for Its Improvement*, Bur. of Agri. Economics, U. S. Dept. of Agriculture, Mar. 1943, pp. 14-15.

⁹ *Ibid.*, pp. 15-16.

Thus, it might be possible to select samples representing larger universes which would enable the extension of sample results to the universe under study. The short time required to budget resulting benefits, providing that basic data are available, is the major advantage of the budget compared with the historical method. In fact, the budget method offers the only feasible method of projecting conservation and other farm plans into the future. In general, however, the budget method has the fault of permitting bias judgments and artificial generalizations. On the other hand, farm budgets are a good planning tool, and if the essential basic data are made available in reliable form there is reason to believe that this procedure has fewer faults than the historical method or the following merit point approach.

Merit Point Method

In a recent issue of this *Journal*,¹⁰ Collier presents a "Procedure For Studying Returns From Conservation Farming" which we shall call the *merit point* method for the sake of convenience. This proposal involves the comparison of "conservation" and "non-conservation" farms in the same year. The following description and examination of this proposal is based on the article cited. The brevity of the article at several points makes it necessary to presume certain necessary connecting steps between stated procedures and indicated aims.

Briefly, the merit point method attempts to relate varying degrees of applied conservation to variations in income. It is assumed that income will bear a direct relationship to the extent to which conservation practices have been applied. Thus, the differences in income between "conservation" and "non-conservation" farms will measure the benefits from conservation.

Although the article does not provide the details of procedure, the following steps would necessarily be involved: (a) the selection of a representative sample of farms from a specified universe; (b) the procurement of detailed data for each farm, including physical, economic, and managerial characteristics, and detailed descriptions of conservation practices as they exist; (c) sorting the sample "a" on the basis of the above characteristics and descriptions "b" in order to obtain comparable groups of farms to be compared; (d) the

¹⁰ George W. Collier, *op. cit.*, pp. 638-694.

development of a practice "rating" for each conservation practice under varying conditions, weighted according to the importance of the respective practices; (e) calculation of a merit point score for each farm in the sample, indicating the extent to which needed conservation practices have been applied; (f) arraying of comparable farms on the basis of income and merit point scores; and (g) the computation of income differences according to variations in the merit scores of farms within each homogeneous group. The sum of the income differences presumably would represent the value of conservation for the sample.

The selection of a representative sample of farms entails the usual problems. If a true picture is to be had as a basis for objective results, all types and sizes of farms and land conditions must be represented in the proportions that actually exist. The sample must not be confined to any modal group, to typical farms, or to predominating land capability classes. Of course, separate or limited analyses may be made for any selected part of the universe.

The procurement of physical, economic, managerial, and other descriptive data entails the common problems of collecting farm statistics. Cooperation of farmers is necessary, and the errors of memory are always an incalculable quantity. As a basis for rating the application of practices, it is suggested that data covering "the most important land treatment factors . . ." would be obtained " . . . for a five year period prior to the year . . ." in which results were to be measured.¹¹ This requires a dependence on memory, in the absence of suitable records. The use of judgment enters into the determination of the significance of what has been responsible for the existing state of conservation or the lack thereof. This is extremely important in order to be certain that the specific conservation practices being considered, or the failure to employ them, was responsible for existing resource conditions. Otherwise, the results may be the measurement of the effects of entirely different factors.

The sorting of any sample of farms into comparable, homogeneous groups is a difficult job. The sample must be large enough to permit the assignment of a reasonable degree of significance to each comparable group. The wide variation in the character of farms in an area is general knowledge; and a glance at the following partial list of variables indicates the possibility for an almost endless num-

¹¹ Collier, *op. cit.*, p. 691.

ber of groups, depending on the degree of likeness that is necessary or desirable. This list of variables includes only the captions of the major sorts. Subdivisions are omitted in behalf of brevity.

1. Land-use capability or productivity rating
 - (a) Classes 1-5 (at least)
2. Size of farm
 - (a) Acreage of cropland
 - (b) Acreage of pasture
 - (c) Acreage of woodland
3. Type of farm
 - (a) Number of types depending on area
4. Intensity of production program
 - (a) Wide variations in intensity
5. Technology
 - (a) Degree of mechanization
 - (b) Quality of varieties and strains
 - (c) Quality of breeds
 - (d) Management
 - (e) Fertility practices
6. Extent of conservation (merit point score)
 - (a) High and low (at least)
7. Length of time measures installed
 - (a) No benefit period
 - (b) Degree of benefit
 - (c) Full benefit
8. Weather conditions during the growing season
 - (a) For any given area, even for adjoining farms, weather conditions may influence production considerably for any single year.

If the sampling process is to be acceptable, it will be difficult, if not impossible, to select initially in order to eliminate any of the above factors. It is evident that several hundreds or thousands of farms may be necessary to obtain representative groups of comparable farms large enough to be significant. Moreover, the job of handling such a sorting job would be difficult. It is obvious that multiple correlation analysis is not applicable for such a large number of variables. Hence, the analyses must depend on mechanical or handsorting procedures. For the areas of the country having diverse farming and metes and bounds surveys this procedure would be practically impossible, unless a large number of the variables were ignored. For rectangularly surveyed prairie or plains farms of uniform use capability or productivity the grouping of comparable farms would be more nearly feasible.

The development of conservation practice merit ratings or

weights for each resource area is a matter of judgment as to what constitutes conservation for the particular area. There are usually alternative ways of accomplishing erosion control and the maintenance of productivity. For example, fertility practices may be substituted for mechanical measures, or changes in landuse may allay the need for other measures. Certainly, in order that uniform concepts are the basis for each respective set of weights, they should be developed by the same persons, or at least be reviewed by an "equalization" board to iron out disparities.

The calculation of merit point scores for each farm in a large sample is a laborious job to say the least. More than this, the degree to which a farmer has accomplished conservation is a matter of judgment to a large extent, unless major dependence is placed in the extent to which certain measures have been applied or installed. Strict adherence to the latter would be superficial since it is the result, not the practice, that is to be measured. In this respect, Collier suggests the review of significant practices for a five year period¹² in order to arrive at a qualified rating. He also suggested that the basis for merit score ratings might be limited to key practices.¹³

In arraying the farms within each comparable group according to merit point scores and income (either gross or net) it is suggested that high and low score groups be segregated on the basis of a more or less arbitrary definition of a conservation farm, in terms of point score, depending on the frequency distribution of scores or ratings.¹⁴ This is not acceptable *per se*. The definition must be based on justifiable standards of conservation accomplishment. Otherwise, if all farms in the group fell within a score-range of 10, for example at any point in the possible range, some separation might be attempted which would carry little or no significance.

From this point the proposed procedure is unexplained. Several implications will enable us to carry the examination on, however. The possibility for variation in procedure is not great, in any event. The reader will find it necessary to follow the remaining appraisal of this method closely because some of the points are somewhat involved.

Apparently, it is assumed that the array of comparable farms will show a direct relationship between high merit point scores and

¹² Collier, *op. cit.*, p. 691.

¹³ *Ibid.*, p. 693.

¹⁴ *Ibid.*, p. 691.

high incomes. This correlation is essential to the objective of benefit measurement by this procedure.¹⁵ On the contrary, there are important instances where this relationship would not hold. For example, (1) if conservation leads to less intensive land utilization (i.e., crops to grazing or forestry) the correlation between income and merit scores might be inverse, rather than direct. And this is a common part of farm plans for conservation, and often an important one. (2) In any instance where income must be foregone in the present, in favor of conserving or rehabilitating farm lands, the relationship between merit point score and income may be inverse. Consequently, this procedure depends on a positive change in current income as a result of conservation. Otherwise, it is not applicable.

The computation of income differences—as the benefits from conservation—involves still more serious limitations. *First*, it is improbable that the benefits, which may reasonably be expected from conservation, will represent a portion of net or gross farm income large enough to be significantly measured as an increase (or decrease) in the total. Even if it were possible to select comparable farms, with and without conservation, it is doubtful that the logically small proportion of total income could be so identified, except in extreme and unusual instances. *Second*, assuming the above to be possible, it should be recognized that the benefit accruing in any one year is not the total benefit from conservation; in fact, not necessarily the average annual benefit. It is impossible to determine the relative state of depletion and conservation which characterizes the farms being compared. Visualize a declining line of depletion and a corresponding inclining or level line of conservation; the value of conservation corresponds to the triangular area between the two. Thus, the total value (capital) is the capitalized value of the average annual benefit, beginning with any specific year. In order to make this capitalization correctly, or to compute an average annual value, the relative progress of the farms being compared along the two courses must be known.¹⁶ *Third*, this procedure

¹⁵ In addition to a number of more or less valid claims for this method, the author states that it will "help to answer the frequent query 'What will it do to my income?'" It is from this standpoint that this method is being examined. This is in keeping with Collier's criticism of the *historical* approach as he finds a need for and introduces the "merit score" proposal. (*Ibid.*, p. 693.)

¹⁶ In addition to discounted future annual earnings for a given number of years, the value of conservation should include the value of the capital resource, which is maintained at the end of the assumed income period. Otherwise, the primary aim of conservation may be ignored. For society the status of the basic resource at any

offers no possibility for testing the value of specific practices and installations, a number of which may be included in a conservation program. It is essential to know the relative value of each component, as well as that of a combination of practices, if a usable evaluation is to be possible. *Finally*, measurement of differences between various levels of conservation is only a partial measure. Unless non-conservation farms have *no* conservation (zero merit score) the full value of benefits could not be measured by this method, all other objections notwithstanding. In fact, exploitative farms may have zero conservation but be realizing a reasonably high annual income as a result of capital (land) liquidation.

The foregoing appraisal of the Merit Point Method may be summarized as follows: (1) It retains the fault of the historical method by endeavoring to isolate and measure the relatively small benefits that may reasonably be expected to accrue as a result of conservation in terms of farm income. (2) The selection of statistically representative sample groups of "conservation" and "non-conservation" farms that are comparable is extremely difficult. (3) It is entirely possible that the budget method of handling costs and benefits may be combined with the merit point score card idea to make a usable educational device. This would retain the close relationship between farm management factors and conservation that is necessary and desirable. It also would provide equal emphasis on costs and benefits. The significance of costs may otherwise be lost in the shuffle. (4) There is no necessary correlation between the amount of conservation and current farm income; and the measure of the differences in income between levels of conservation would be only a partial measure at best.¹⁷ (5) It is certain that the merit point method offers no workable procedure by which the farm benefits from conservation can be estimated for areas, regions, or the Nation.

Experimental Method

Unfortunately, evaluations of the type discussed here usually are not undertaken until some urgent need arises. Immediately, time

given time in the future may be more important than the income between now and then. Of course, if any infinite flow of income is capitalized, the full value is represented by the capitalized value.

¹⁷ If direct correlation between merit point score and income could be assumed, it is conceivable that a rate of increase in income based on the intensity of applied conservation could be derived.

limitations place handicaps in the way of many methods. In the case of public expenditures for the improvement, protection, and conservation of natural resources, evaluation (both economic and physical) should be continuous. Prior research should be the basis for initial recommendations, and succeeding examinations and evaluations should guide the programs as they are applied.

Early in this examination the occurrence of conservation benefits as a "variable" flow was noted. Subsequent discussions of methodology pointed out relative possibilities of recording and measuring this pattern of occurrence. Although the historical farm income method has the possibility of following this pattern, it is likely that identification and measurement will be handicapped by the simultaneous effects of numerous unrelated and uncontrolled factors. The budget method might recognize this fact if the basic data were accurately obtained. But the merit point method, at best, would record only cross sections of income or production streams; and there is no provision for determining the stage of the flow. It must be recognized that any method suitable for measuring benefit streams must be historical in the sense that the variable occurrence of benefits over time is satisfactorily recorded.

Following the foregoing criticism of the orthodox historical method, it may be well to emphasize the fact that the flow of benefits accruing as attributes of conservation may be *measured as physical quantities*. In fact, they *must* be, in order to avoid the complexity of income (monetary) variables which have no relation to conservation *per se*. This is the primary reason for advancing the proposal which follows shortly. It should be clear that economic interpretations of physical attributes may be added as a part of the appraisal process. This procedure permits complete control of this troublesome group of variables.

On the other hand, it is unlikely that any single technique will be found for evaluating soil conservation which will be completely satisfactory. The very nature of the occurrence of benefits, and the difficulties of isolating them from other effects, prevent the application of any perfect approach. This is true of all resource benefits that have joint characteristics and relationships. Directness of occurrence, tangibility of character, and the definiteness of incidence determine the ease or difficulty of measurement. However, the aim must be to find a method, or a combination of methods, that conform to acceptable standards of scientific investigation, and which

provide a usable result. In this instance, "a usable result" is a measure of the benefit to be derived by farmers from the application of specific conservation practices, in terms of the cost of these practices. It is desirable to know this, not for a single farm only, but for large groups of farms. The following suggestions are made in behalf of a workable procedure which will provide a usable estimate of this character.

The method proposed here is not new. On the contrary, it is one of the oldest techniques known to agricultural science.¹⁸ Crops, livestock, fertilizers and other items have been tested experimentally for many years. One can scarcely see any great difference between testing or evaluating a new strain of hybrid corn and doing the same for a conservation practice. In fact, the physical scientists, have been making these tests for decades. The trouble is that the economists have not made use of the data, or they have not found the physical-test results to be presented in a form to which economic analyses are applicable. Perhaps the fault has been of both sorts.

The following description of the proposed experimental procedure is tentative. (1) Define the practices and combinations of practices that may be considered as constituting conservation from the various land-use capability or productivity classes of soils in the different resource areas or provinces. (2) Systematically, and as rapidly as possible, establish test plot and field evaluations of those practices and combinations of practices that may be considered as constituting conservation under varying resource conditions, giving due consideration to all factors that may induce differences in the results of specific measures or programs. It is unnecessary to explain the details of experimental tests of this kind, except to point out the need for strict adherence to the essential controls, representativeness, and comparability; and the necessity for designing the controlled physical tests in a fashion that will facilitate economic interpretation of the results. The plot and field tests must be planned carefully to fit the prevailing systems of farming. In other words, the practical application of the results must be the guide for designing the evaluation of conservation practices, in an effort to reproduce actual farming conditions as nearly as possible. This requirement prompts the suggestion that field experiments, conduct-

¹⁸ This is essentially the method presented by Neil W. Johnson, *op. cit.*, pp. 16-17, under the title of *Controlled Experiments*.

ed on privately owned farms under actual farm conditions, will be most suitable. In fact, this will be essential if substantial progress is to be made. Agreements with farmers, involving the necessary controls and responsibilities, will be necessary. Encouragement to agree to the use of land for tests of this character might be in the form of such contributions as the experiments provided, cash rental for fields involved, compensation to farmers for work performed, and reimbursement for damages where necessary. Additional tests could be established on publicly owned lands, particularly at the Soil Conservation Experiment Stations and the State Agricultural Experiment Stations. The evaluation work of the experiment stations, during the past ten years, undoubtedly represents considerable progress already. (3) Records of all inputs, installations, and practices will be required, along with the costs and time involved. Annual progress reports, showing the physical results together with their economic interpretations, should be made. (4) When adequate reliable experimental evidence has been gathered for any land class or soil group, reasonably reliable estimates of the value of conservation may be obtained by an extension of the results to the area involved. Estimates of benefits may be made on the basis of practices applied; or they may be compiled to show what the value would be if the practices were to be applied as prescribed. (5) With complete coverage by experimental work, estimates of soil conservation benefits should be possible by areas, regions, and the Nation, eventually.

In order to make full use of all available data and to gain a maximum of dependable knowledge as rapidly as possible, it is desirable that the results of past evaluations be assembled immediately. It is probable that a large part of this data could be analyzed and interpreted in economic terms for immediate use. Moreover, it will be desirable to ascertain the extent to which past work has been deficient in terms of the land conditions covered, the quality and adequacy of results, the important problems encountered, and the mistakes that should not be repeated.

Now let's take a look at this proposal from the standpoint of methodological difficulties, statistical accuracy, and the usefulness of results. So far as methodology is concerned, the techniques are well known to all who know the work of agricultural scientists. By check plot and contiguous field testing it is possible to hold all factors in control, except the specific practice that is being tested. The

results of the tests, if properly checked, are applicable under similar conditions, in any location. The difficulty of measuring benefits through a conglomerated income is avoided. The matter of price is in complete control. The physical results may be interpreted directly in terms of enterprise income, or they may be budgeted as farm income, according to the extent that the particular combination of practices are usually employed by farms of various types within the same resource area.

The matter of sampling a highly variable universe is greatly simplified. Actually there is little or no need for universe sampling because the expansion of results from representative plots may be accomplished by extensions to soil associations, soil types, or "land-use capability classes." The existence and extent of these more or less homogeneous soil groups is a matter of actual survey.¹⁹ There is reason to believe that the accuracy of extending experimental results on this basis would be much greater than could be obtained by the sampling of attributes in an uncontrolled highly variable universe.

The results of this method are useful in the appraisal of conservation because they are based on known and controlled test work. The high degree of dependence placed in agronomic and plant genetic experimental work is indicative of the probable general acceptance of a systematic testing of conservation measures. Moreover, the isolation of the benefits for specific conservation practices, and for combinations of practices, is highly desirable in appraising a conservation program. The useful portions of a proposed program may be relieved of the burden of carrying idealistic and low-return practices which become associated with programs of this type from time to time.

One criticism which has plagued the historical method is likely to be applied in this instance—the long time required. There is no alternative to the employment of sufficient time for testing conservation, although controlled experiments should shorten the time required, compared with that required by the historical farm income approach. The testing of a new strain of wheat takes time, but, if properly done, the results are satisfying and there is no doubt about the answer. Time is required for such procedures and there is no substitute, except unfounded guesses. Knowledge of soil con-

¹⁹ To the extent that soil association and landuse capability surveys are incomplete and imperfect, extensions of results to a particular universe would be limited.

servation benefits will grow in value as a picture of the flow of benefits over time is developed.

The importance of measuring the *impact of conservation* on the economy of farm units has been the usual criticism of any approach not using (final) farm income as the medium of measurement. Except for the basic economic consideration of costs and benefits, however, this plea seems to be more myth than principle. Actually, any factor that enhances the economy of the several farm enterprises obviously cannot have a negative impact. It is true that the imperfections of farmer application are likely to result in lower benefits than will accrue from carefully controlled experimental work. Even so, the probable error in estimating actual benefits by experimental methods will not be beyond reason. Field tests under farm conditions should eliminate this criticism. In fact, entire farms might be operated experimentally for evaluating the economic effectiveness of soil conservation practices.

There seems to be no substantial reasons why land-use adjustments and combinations of practices may not be evaluated experimentally. The testing of the relative benefits that may result from practices applied singly and in combination are important aspects of the problem. In some cases total net benefits may be greater if a combination of practices are employed, whereas in others the "intensive margin" may be reached quickly. On the other hand, individual testing is essential to determine whether a particular practice should be applied under any circumstances.

There are several additional needs for accurate experimental data of this character. For example, intelligent farm planning requires basic production data relative to the application of conservation practices. The use of farm budgets, either as an aid to planning or for making advanced estimates of land values, demands this type of basic information.²⁰ These data are grossly inadequate at present.

Other Methods

In behalf of farm planning for conservation, additional methods of evaluation have been proposed. Among them are (a) *Farmer*

²⁰ A recent suggestion that conservation improvements increase land values equivalent to their cost, as a basis for credit, emphasizes the need for accurate information of this kind. (See D. R. Francis, *Bank Credit by Soil Conservation*, Federal Reserve Bank of St. Louis, 1946, p. 31. Also see J. D. Black, *Tailored Credit for Land Improvements*, this JOURNAL, May 1946, pp. 596-604.)

*Opinion Surveys, (b) Case Studies of Individual Farms, (c) Segmental or Specific Practice Studies, and (d) Tailored to Order or Special Problem Studies.*²¹ All of these approaches have merit under certain circumstances. In general, however, they are more adaptable to the study of administrative problems associated with the application of conservation programs, and the planning of individual farms in the interest of conservation. They are not suitable for making area or regional estimates of economic benefits.

Conclusions

It is obvious that government programs should not be based solely on idealism. The wise appropriation of public funds and the intelligent application of conservation programs demand cost-benefit evaluations. It is undesirable to strive to achieve conservation on the one hand and to make wasteful expenditures for uneconomic programs on the other. The foregoing examination of evaluation methodology has indicated the following:

1. It is very difficult to develop a procedure to isolate the potential benefits of conservation practices through the measurement of gross or net farm income that will provide usable results.
2. A procedure for sampling the Nation's farms, as a basis for measuring the results of a single factor that is subject to such a wide variety of natural conditions, would be extremely involved.
3. A systematic evaluation of soil conservation practices should be set in motion. The basic procedure should be the *experimental method* described above; and it should be designed to facilitate economic interpretations.
4. To gain a maximum of information promptly, two steps might be taken. *First*, collect and evaluate all the test plot and field test data now available in the Soil Conservation Experiment Stations and the State Agricultural Experiment Stations. *Second*, resurvey the identical farms which were the basis for the *historical method* evaluations started in 1936 in a few selected project and camp areas; make field appraisals of the measures installed 8 to 10 years ago; and determine the extent to which practices started at that time have been continued,

²¹ Neil W. Johnson, *op. cit.*, pp. 13-24.

together with the reasons why they have not been, where appropriate. The maintenance of numerous installations should be observed carefully, and their relative value should be appraised. This would provide an approach to answering some of the questions concerning the practical aspects of applying conservation practices.

5. As more reliable experimental data become available, economic evaluations should be extended and kept current. Such data will provide the basis for more accurate farm plan budgeting, and for making more reliable appraisals as bases for the extension of credit.

INTEGRATION OF MARKETING AND PRODUCTION SERVICES BY FLORIDA CITRUS ASSOCIATIONS

H. G. HAMILTON*

University of Florida

AS farmers become proficient in one type of cooperative effort, they usually attempt new fields of activity. Associations having performed satisfactory country point marketing service may extend their marketing service to the terminal markets, or the members may form a service cooperative such as finance, insurance, or electricity. Florida Citrus Cooperatives since 1909 have, on the whole, rendered a satisfactory packing-selling service. The big development of citrus cooperatives in recent years has been in the field of production. The Florida development is unique, not only because it covers the entire field of citrus production, but—at least to some extent—because it is completely integrated with the marketing service.

Development and Extent of Cooperative Production Services

Approximately one-third of the Florida citrus marketing associations have available for their membership production services that cover everything from clearing and fencing land and setting trees to spraying, dusting, fertilizing and plowing the groves. Another one-third perform all the major production services and the remaining one-third, which for the most part are small associations, have not instituted production services. Because practically all the large associations have instituted the production services, well over half the members of Florida citrus associations may avail themselves of the complete production service, and perhaps 80 percent have access to the major production services. There is hardly an association in the State which has not instituted production services, or is not considering it.

Out of a sample of 27 associations for the 1944-45 season, 17 rendered important production services to their members, and at least ten of these rendered services covering the entire field of production. The type of services rendered and the extent used by the members is given in Table 1. In general, citrus associations require

* The author is indebted to Dr. C. V. Noble and Mr. A. H. Spurlock of the University of Florida and Dr. J. Wayne Reitz, Economic Counsel of the United Growers and Shippers Association, Orlando, Florida, who read the paper and made helpful suggestions.

the member to market his fruit through the association, but the use of the production service is optional. It will be observed that approximately 70 percent of the members and 70 percent of the acreage use the production services of the association. It is not true, as one might expect, that those members not using the production services of the association always do their own work. In addition

TABLE 1. PRODUCTION SERVICE PER ASSOCIATION RENDERED BY 27 FLORIDA CITRUS COOPERATIVE ASSOCIATIONS, 1944-45 SEASON*

Service	Number associa- tions	Members			Acreage			Average acreage of mem- bers served
		Total	Using service	Per- cent using service	Total	Using service	Per- cent using service	
Cultural.....	17	124	87	70.2	2690	1776	66.0	20.4
Spraying.....	17	125	94	75.2	2740	1943	70.9	20.7
Dusting.....	13	119	85	71.2	2967	1991	67.1	23.5
Pruning.....	12	132	90	68.2	2733	1758	64.3	19.5
Irrigation.....	10	135	58	43.1	3021	1275	42.2	21.9
Fertilizing.....	17	125	93	78.8	2739	2062	75.3	21.0

* The author is indebted to Mr. J. K. Samuels of the Farm Credit Administration, Washington, D. C. for his assistance in obtaining the data in this table.

to the cooperatives there are both individuals and corporations performing production services for growers. Some of these offer a complete service, whereas others offer a specialized service such as spraying, dusting or disking. Some of the members do look after their own groves, but it is often the case that such growers, unless very large, will perform services also for several other growers in order to make possible a more complete utilization of equipment and labor.

A condensed profit and loss statement of the production department of 18 associations is shown in Table 2 for the 1944-45 season. The revenue per association was \$91,633.40, which is roughly from one-fourth to one-third of the gross revenue for both marketing and production services. Services, on the average, cost \$1,200 per member for members using the service. This does not include the fertilizer material, but does include the application of the fertilizer. A limited number of associations have fertilizer mixing plants. Raw materials are purchased and the formulas are made according to the needs of the individual groves. One association in 1943-44 made 23 different formulas and used, without mixing, 17 different raw ferti-

lizer materials.¹ A somewhat larger number of associations have their own plants for making spray materials. Other associations purchase prepared spray materials and ready mixed fertilizers.

Usually associations, particularly large associations, have an experienced and well trained horticulturist in charge of the production services. In addition to the horticulturist some associations have a highly trained entomologist and pathologist in charge of pest control.

TABLE 2. AVERAGE PROFIT AND LOSS STATEMENT OF GROVE PRODUCTION SERVICE DEPARTMENTS FOR 18 ASSOCIATIONS FOR THE 1944-45 SEASON*

	Amount per association	Amount per member
Revenue.....	\$91,633.40	\$1,205.69
Expenses:		
Salaries.....	\$ 1,937.78 ¹	\$ 25.50
Labor.....	36,997.02	486.80
Materials.....	27,332.89	359.64
Repairs of equipment.....	6,782.33	89.24
Miscellaneous supplies.....	10,212.37	134.38
Equipment rental.....	384.67	5.06
Outside grove work.....	551.23	7.25
Office supplies expense.....	80.80	1.06
Telephone and telegraph.....	79.88	1.05
Travel.....	919.67	12.10
Interest.....	139.61	1.84
Insurance.....	790.06	10.40
Taxes.....	223.08	2.94
Depreciation.....	3,445.33	45.33
General expense.....	1,052.78	13.85
Total.....	\$90,930.00	\$1,196.44
Income.....	\$ 703.40	\$ 9.25

* The author is indebted to Mr. J. K. Samuels of the Farm Credit Administration, Washington, D. C., for his assistance in obtaining the data in this table.

¹ Because of the method of allocation of sales between the functions of marketing and production services, this is perhaps a little low. However, it is the actual amount allocated to the production services.

Members of the associations may put their groves in complete charge of the association. In such cases the horticulturist is charged with the entire responsibility of the production of fruit on the grove. He not only designates the amount of fertilizer but the kind and time of application. He determines also the time of spraying and kind of materials to be used. All cultural work is at his discre-

¹ This includes minor elements and also different sources of the major elements.

tion, as well as pruning and replacing of old or diseased trees with young trees. The need of tree surgery also is left to him. Other members may dictate the needs of their groves and instruct the horticulturist what is to be done and how and when it is to be done. Still other members may delegate only a part of the operation to the horticulturist and control certain operations themselves. All members, of course, are at liberty to consult with association officials about their production problems. Perhaps the care that the grove is to receive is decided more than any other way, in conference between the grower and horticulturist.

TABLE 3. NUMBER OF CITRUS MARKETING ASSOCIATIONS PERFORMING GROVE CARETAKING SERVICES, BY NUMBER OF SERVICES PERFORMED AND BY SEASONS, 1925-26 TO 1939-40, INCLUSIVE

Season	Number of services performed								Total number of associations	Associations performing caretaking service
	1	2	3	4	5	6	None	Unknown		
1925-26....	2	1					50		53	3
1926-27....	2	2					49		53	4
1927-28....	3	3					47	1	54	6
1928-29....	3	6					47	2	58	9
1929-30....		9					46	3	58	9
1930-31....		7	1	1			44	4	57	9
1931-32....	2	7	1	2			40	5	57	12
1932-33....	1	7	3	2			35	3	51	13
1933-34....	3	6	6	2	1		24	3	45	18
1934-35....	4	9	5	4	1		27	5	55	23
1935-36....	4	8	4	6	2		21	3	48	24
1936-37....	4	7	7	5	1	3	19	1	47	27
1937-38....	4	6	6	7	1	4	16	1	45	28
1938-39....	4	5	3	9	3	4	14	1	43	28
1939-40....	4	3	2		9	3	13	1	39	25

Source: H. G. Hamilton and A. H. Spurlock *Farmers' Cooperative Associations in Florida—Florida Agricultural Experiment Station Bulletin No. 386*.

Cooperative spraying was first done in 1914 and dusting was started one year later. Other services are of more recent origin; some, such as irrigation, have been added quite recently. The pattern that production service has taken since 1925 may be observed in Table 3. In 1925 a few associations performed only a limited number of production services. Later other services were instituted and other associations entered the field of production service. For the 1925-26 season only 3 associations, or 6 percent, offered a total of two services, and only one of these associations offered both services—the other two associations offered only one service each. By

the 1939-40 season 25 associations, or approximately two-thirds of the associations, were offering at least one service and some performed complete production service. The pattern of development, in our opinion, is healthy. As experience was obtained and techniques developed, associations were called upon by their members to render other services. Such a development speaks well for cooperative effort and for those responsible for the movement. At the present time all the large associations have production service departments, unless their members are served by efficient individual or auxiliary firms.

TABLE 4. RELATION OF PRODUCTION SERVICES TO PRICES RECEIVED FOR FRUIT, CITRUS COOPERATIVE ASSOCIATIONS, 1925-26 TO 1939-40

Season	Cooperatives without production service		Cooperatives with production service	
	F.O.B. price index	Grower price index	F.O.B. price index	Grower price index
1925-26 to 1929-30.....	92	84	100	101
1930-31 to 1939-40.....	95	86	101	100

Source: Adapted from H. G. Hamilton and A. H. Spurlock *Farmers' Cooperative Associations in Florida*, Florida Agricultural Experiment Station Bulletin No. 386.

Cost data are not available to show the relative efficiency of cooperatives as compared to individuals, or corporations with respect to production services; however, a recent study indicates that members using the production service of cooperatives have slightly higher prices for their fruit than members not using the service.² It is true also that cooperatives with production departments receive slightly higher prices than associations without production departments (Table 4). It is not definite that the production department is entirely responsible for the higher price shown in Table 4. Since associations with production departments were larger, they may have been able to receive slightly higher prices because they could better meet the demand of the markets. It is likely that the production service is one factor that enables associations to have large volume.

In Florida, as in some other sections of the country, it is a com-

² A thesis, presented to the Graduate School of the University of Florida, July, 1946 by Marshall R. Godwin, shows that members using the production services of an association over a period of 11 years received about 6 percent higher prices than members not using the production services.

mon practice for marketing associations to purchase production supplies for members. Where the supplies are not purchased for members, Florida associations often extend credit to members for the purchase of these supplies; however, only in the case of citrus have cooperative marketing associations to any extent instituted production services. To our knowledge, except in one case where the production cooperative is so closely related because of personnel that it is practically the same as a department, no cooperative has succeeded in the function of citrus production alone. It has only been when it was integrated with the marketing service that the production service has succeeded. There is one cooperative, excluding the one just referred to, that is now performing production service in a very limited way and does not perform marketing services; however, originally the association was organized only for marketing functions, later added the function of production, and then discontinued the marketing function. The production activities carried on now by the few remaining members would hardly justify a charter since it is largely a one-man affair in which services are performed for a limited number of members.

Two questions naturally arise in connection with the development of cooperative production services: (1) What are the conditions that make cooperative production possible? (2) Why is the production service integrated with the marketing service?

Conditions Favoring Cooperative Production Services

The type of farming—absentee ownership, and ownership by professional men who are too busy to devote attention to their groves and who are often inexperienced and uninformed with respect to their production problems—seems to be the chief reason that makes cooperative effort possible, while a better utilization of personnel and equipment seems to be responsible for integrating production services with marketing services.

Citrus growing in Florida is highly specialized and is concentrated into relatively small areas. The income from citrus is about $\frac{2}{5}$ of all agricultural income, yet only about $1\frac{1}{4}$ percent of the State land area, or $\frac{1}{20}$ of the farm area, is devoted to citrus production. Some of the best citrus lands are of little value for general farming or vegetable growing except for watermelons. Groves vary greatly in size, but in general are small; the average size of groves using production services in 1944-45 was approximately 20 acres. Usually

there is no land in other crops or pasture for animals, often there are no buildings and in some cases no fences. Efficient production of citrus requires expensive machinery and equipment. Value of machinery used on a ten acre grove often exceeds the value of the grove; particularly was this true before values were greatly increased because of conditions resulting from the war. The total time that such equipment is used does not usually exceed a few days in the course of a year. For example, there are spray machines that will effectively cover a 10 acre grove in an hour. Because of this factor, it is not practical for growers to own their equipment for small groves unless they use it in taking care of other groves.

Similar difficulties result from the use of labor. Much of the grove work requires two or more men working together for the greatest efficiency, which means that if a grower is going to confine his operation to a small grove he will need for short periods of time usually not less than two men in addition to himself, but most of the time there would be no work for these men to do. Furthermore, there are practically no rainy day jobs to be done on a grove as is often the case on a general farm.

Citrus real estate developments, although not necessarily a factor that makes cooperative production services possible, nevertheless have been a contributing factor. Often these citrus development companies planted groves in several hundred acre blocks and sold them in units of five acres or multiples of five acres. With the purchase of the grove, the buyer often entered into contract with the real estate company to care for it. In some cases the development company failed; in other cases growers became dissatisfied with the service. This often resulted in a number of growers finding themselves in the position of owning groves adjacent to other growers in the same predicament with no equipment and with too small a unit for efficient operation. It was good business for these adjacent owners to seek some cooperative arrangement to solve their problem. In a few cases these growers formed a cooperative to handle not only their marketing problems, but also their production problems. In other cases these growers, or a part of them, would affiliate with existing cooperatives. Real estate developments of this nature were, and may be in the future, conducive to both marketing and production cooperative effort, for they leave the grower without means of marketing or production. Such situations are favorable for cooperative production because the acreage of small

owners is grouped in large blocks of several hundred acres, a condition which lends itself well to big machine operations.

Absentee ownership, of which there is much in Florida, is a factor favoring cooperative production. Absentee owners living out of the State must make arrangements for someone to handle their production and marketing problems. Some cooperatives have members who may not see their groves in several years, and often members see their groves only once a year. Many out-of-state owners have joined cooperatives and turned their entire grove operation over to the cooperatives.

Closely akin to the out-of-state member is the member who lives in the State but not on his grove, and there are many of these. He is often a professional man without grove equipment, time, and often without knowledge to devote to citrus fruit production. These members look on their grove as a place to invest money in the same way they look upon investment in corporations. Often they give no more attention to their grove than they do to some corporation in which they own stock, which is little more than attending directors' meetings, if they happen to be a director, or stock-holders' meetings. These grove owners, who are busy with professional life, often feel that it is better business to employ well trained horticulturists than it is to try and keep informed on production problems themselves. By working on a cooperative basis they are able to get highly trained men and efficient equipment at reasonable prices.

In the case of both the absentee owner, who lives out of the State, and the professional man living in the State, it is not a question whether they will perform the production service themselves or hire someone else, but rather it is a question of hiring an individual, a cooperative, or a corporation to take care of their groves. For this type of grove owner cooperatives seem to be in a position to render a satisfactory service.

There is, of course, the owner who lives on his grove and does his own production work. He is in a different position from the absentee owner or the professional man, but he, particularly if he is a small grower, finds it difficult to compete with large growers, cooperatives, or corporations in the production of citrus fruit because of the necessity of heavy investment in equipment and high degree of specialization, without any other enterprise on which he may use his equipment or labor. Such growers have one of two courses to follow. He may join a cooperative and, as some do, secure employ-

ment from the cooperative, or he may enlarge his business by caring for the groves of other growers; however, if he chooses the latter he often has to borrow money to finance his operation. For credit he may turn to a commercial bank, production credit association of a cooperative marketing organization. In Florida, marketing firms - whether cooperative or not—have for years either purchased production supplies for growers or loaned them money with which to purchase these supplies. The practice of marketing firms extending credit for production purposes is considered undesirable by some cooperative authorities; however, the experience of some of Florida's most successful cooperatives is that where the marketing and production services are so completely integrated, as in Florida, the practice is sound.

Cooperative Production Services Integrated With Marketing Services

The advantages of cooperative production service are not confined solely to the member; the cooperative itself benefits from the service. The marketing of citrus fruit in Florida extends over a period of from 4 to 8 months. It is, therefore, a problem to utilize key employees at full capacity throughout the year. Either employees must obtain several months leave, or have what amounts to a long vacation with pay. Neither is satisfactory, but marketing cooperatives have found that when production services are integrated with the marketing function a considerable part of the office help can be productively employed, and most of the key men such as field foremen and mechanics can be used in the production department in the off season marketing period. In addition to a more efficient use of employees, much of the equipment used in the marketing function may be used also in the production function; particularly is this true for some types of trucks and tractors.

In addition to the economies of employees and equipment, other economies result both to the member and to the association. It will require no more time, in most cases, for the grower to look after both his production and marketing problems where the work is integrated than to look after one of these problems when done by separate firms; likewise, it requires but little more time for the manager to deal with the member on both marketing and production than for one. It is easier for the management to determine the effect of production practices on quality of product in an integrated set-up than in a specialized set-up because all, or at least most of the facts, are known. If fruit is of poor quality, the production practice

may be checked in an effort to determine the cause; but under a specialized set-up, if the quality is poor, it may be difficult for the marketing firm to determine the responsible production practice and in some cases if it were known it might not be possible to get the practice changed. With integration the management can be held for whatever mistakes occur, and if a good job is done it does not have to share the credit.

Dangers of Integrating Production and Marketing Services

Under Florida conditions, where the type of citrus farming is highly specialized, where the grove holdings are often small, where there is absentee ownership and ownership by people who cannot give personal supervision to their groves, much can be said in favor of cooperative production. Furthermore, because of better use of employees' time and equipment, economies result by integrating the production with the marketing service. Such a system has serious difficulties, however, particularly with respect to integrating the two functions of marketing and production. In the first place there is little diversity of income from the farming operation. When prices are low, as they will be again, the marketing function has no way of tiding over the production function because low prices hit the grower who is responsible for paying for both services. Of course, each service should stand on its own feet; however, if the crop brings red ink it is difficult to secure from the grower funds to cover the marketing charge. Since the practice of rendering the production service is on a credit basis, it will be even more difficult for the grower to pay for the production service if the crop fails or prices are low. It is true that with continuing crop liens the crop next year may be collateral for the carry-over debt; however, funds must be forthcoming for producing the next crop. The situation is more serious when the grower has put the grove in charge of the association and the association has accepted this responsibility. Under such circumstances the member is inclined to say that the responsibility of making the grove pay, or at least to see that the grove makes production costs, rests with the association. The hazards inherent in the situation are so great that no association should assume this responsibility. Neither should the association assume responsibility for making marginal groves pay, even with normal prices.

Immediately preceding the 1941 emergency some associations

were not in too sound a financial position, and at least a part of it was due to the production service operations and the policy of loaning the member money for production purposes. In four associations out of twenty-four for which data were available at the close of the 1939-40 season, the members' accounts receivable exceeded the value of the fruit marketed during the season. One association had \$1.13 per box (for boxes marketed in 1939-40) at the end of the 1939-40 season in members' accounts receivable. The seriousness of this situation is readily realized when the \$1.13 per box in members' receivables is compared with \$.53 per box, which was the amount members, on the average, received that season for fruit. This association began the 1940-41 season with twice as much in members' accounts receivable as was received for fruit the previous season. Since \$1.13 per box was the average for all members it is quite possible that some members owed the association \$2.00 per box, or four crops, on the basis of 1939-40 conditions. Because of the increase in fruit prices and a more conservative policy on the part of this association at the end of the 1944-45 season, members' accounts receivable was only \$.03 per box and prices received averaged \$2.21 per box. It is not good business to depend on a war to bail you out of such tight places. A mere recognition of what happened four or five years ago is no guarantee that it will not happen again. If associations are to perform production services successfully, a system of adequate reserves should be instituted at once. In brief, it involves the grower building up a reserve equal to one year's production expense. If the reserve should be impaired for any reason, it must be restored with adequate collateral before the next year's operations are financed. Not many of the citrus associations have established such reserves. Most citrus associations are in good financial condition at the present time; particularly is this true with respect to members' accounts receivable, which amounted, on the average, to only \$.11 per box at the close of the 1944-45 season crop.

The average net worth for 29 Florida citrus associations at the end of the 1944-45 season was approximately \$300,000.00, and in some cases the net worth exceeds \$1,000,000.00. When it is realized that this represents about 85 percent of the assets it is a creditable position; however, the cost of producing fruit is so great that an unwise production policy could easily wipe out this amount in a relatively short time.

MEASURING THE FAMILY FARM

ORLIN J. SCOVILLE

Bureau of Agricultural Economics

THERE are many different concepts of the family farm, reflecting lack of agreement as to the fundamental nature of this institution. Likewise, there are wide differences of opinion with respect to the desirability of encouraging, through government programs, all kinds of family farms or only those having certain characteristics. It is the purpose of this paper to discuss some of the general concepts of the family farm, together with some of the current definitions used to describe particular kinds of family farms. Finally, an attempt will be made to frame some improved definitions.

Concepts of the family farm may be grouped into 2 classes, functional and purposive. The functional concepts are intended to describe the fundamental ways in which farming on family farms differs from other kinds of farming. The purposive concepts are meant to describe the kind of farm that will advance certain desired ends, such as adequate income, continuity of tenure, or employment of family labor.

Functional Concepts

In the minds of many people the family farm is an enterprise possessing certain unique characteristics not common to other kinds of farm business. Numerous attempts have been made to define these essential qualities.

The most commonly mentioned characteristics of family farms include the combination of home and business life; the tendency for a greater proportion of family living and farm production cost items to be raised on the farm; and the predominant role of the operator and his family in labor and management. The first two of these do not furnish a satisfactory basis for a definition of the family farm. The combination of home and business is common to most sizes and kinds of farms. The tendency for family living and production goods to be produced on the farm is more truly a characteristic of subsistence farming than of family farms. It would appear that the fundamental distinction between family farms and others must lie in the relationship between the farm family and farm work and management.

While occasionally the family farm is defined as one on which the family does all the work, the fact that some labor is hired on rather small farms makes such a definition of questionable value. According to the Census of Agriculture, 12 percent of the farms reporting sale or home use of farm products worth from \$1 to \$99 in 1939 hired some labor. For farms with products valued at \$600 to \$749, the proportion is one-third and it is almost half in the value group \$1,000-\$1,499 (Table 1).

TABLE 1. NUMBER AND PROPORTION OF FARMS REPORTING EXPENDITURES FOR HIRED LABOR 1939, BY VALUE OF PRODUCT GROUPS*

Value-of-product group	Farms	Farms reporting expenditures for hired labor	
	Number	Number	Percent
All classified farms:**	5,968,755	2,247,850	38
<i>Dollars</i>			
1- 99	332,195	38,319	12
100- 249	812,810	124,086	15
250- 399	821,616	166,465	20
400- 599	870,629	233,905	27
600- 749	479,481	160,057	33
750- 999	574,094	227,279	40
1,000-1,499	708,917	349,283	49
1,500-1,999	416,081	242,006	58
2,000-2,499	264,020	171,462	65
2,500-3,999	375,973	268,608	71
4,000-5,999	165,679	134,209	81
6,000-9,999	88,947	78,444	88
10,000 and over	58,313	53,727	92

* *Census of Agriculture, 1940*, "Farm Characteristics by Value of Products," Ch. VIII.

** Does not include farms with zero value of products or not reporting.

Other definitions recognize that some labor might be hired on family farms. For one of these, family farms are said not to *depend* on hired labor.¹ It is sometimes held that a farm continues to be a family farm as long as the amount of family labor, including that of the operator, exceeds the labor hired. From Table 2 it may be seen that, as of 1939, the proportion of workers who were family members was more than half for all value-of-product groups below

¹ See O. R. Johnson, "The Family Farm," this JOURNAL, XXVI (3), p. 530. August 1944.

\$4,000. For the group \$4,000-\$5,999, the proportion was a little more than half in March, but less than half in September. While there may be considerable practical value in distinguishing between family farms and larger farms on the basis of quantity of labor hired, the question may be raised as to whether this is a functional

TABLE 2. FAMILY WORKERS: AVERAGE NUMBER PER FARM REPORTING, AND PERCENT OF ALL FARM LABORERS, BY VALUE OF PRODUCTS, MARCH 24-30, 1940 AND SEPTEMBER 24-30, 1939*

Value-of-product group	Farms reporting family labor		Family workers			
			Average per farm reporting		Percent of all farm workers***	
	March	September	March	Sept.	March	Sept.
All classified farms:** Dollars	Number	Number	Number	Number	Percent	Percent
1- 99	5,013,488	4,857,749	1.57	1.66	81.8	72.2
100- 249	234,989	225,913	1.29	1.31	94.4	92.4
	639,324	616,252	1.39	1.45	93.9	91.2
250- 399	685,578	666,806	1.48	1.60	93.4	89.6
400- 599	749,546	728,385	1.54	1.70	92.3	86.1
600- 749	419,640	406,944	1.62	1.77	91.1	83.4
750- 999	499,448	484,883	1.63	1.75	88.0	79.1
1,000-1,499	618,587	600,487	1.66	1.74	85.2	74.7
1,500-1,999	362,011	349,752	1.68	1.73	81.3	68.9
2,000-2,499	229,073	221,051	1.68	1.73	77.7	63.9
2,500-3,999	323,620	313,962	1.69	1.72	70.6	57.0
4,000-5,999	138,008	134,434	1.75	1.78	58.4	44.7
6,000-9,999	72,081	69,259	1.72	1.74	44.5	33.0
10,000 and over	41,583	39,621	1.68	1.71	17.1	11.6

* *Census of Agriculture, 1940*, "Farm Characteristics by Value of Products," Chapter VII.

** Does not include farms not reporting or with zero value of products.

*** On farms reporting family labor.

distinction. The essential functional difference would seem to lie in the relationship between work and management, rather than in the relative numbers of family and hired workers on a farm, although these two no doubt are interrelated to some degree. This is the basis of differentiation suggested by Dr. G. F. Warren: "Even with three (hired) men the farm still has the characteristic of the family farm. The farmer and his sons work with the men."²

² G. F. Warren, *Farm Management*, Macmillan 1913, p. 240. While this passage

An English definition of the small holding—an establishment similar in many ways to a small family farm—expresses about the same idea, but also excludes the use of hired labor: “Generally speaking, the medium-sized farm differs from the small holding in that, first, the occupier needs to employ wage labour, and secondly, there is a certain division between manual labour and the work of organization.”³

What is this “certain division between manual labour and the work of organization”? If it is taken to mean that management and labor are specialized functions carried on by different individuals, there are relatively few American farms that are too large to be called family farms. Warren recognized this situation and refers to all farms larger than family units as “bonanza farms.” It appears that there is considerable variation by type of farm; few plantations would qualify as family farms even though they might be only of moderate size, while many extensive ranches and wheat farms would be family farms.

If, however, the essential functional distinction between family farms and larger units is considered to lie in the degree of direction and control over the worker, the boundary between family farms and others must be drawn farther down the scale. It has been pointed out by Louise Howard in an exhaustive study of labor in agriculture, that in its essentials, the employer-employee relationship in agriculture is no different from that in other industries. Where there is one employee on a farm he may enter into rather special relations with his employer, such as living with the farm family, for example. “Yet even in these cases, and quite without question as soon as 2 or 3 workers are found on the same farm, the position of the agricultural wage earner is substantially the same as that of employed persons in other industries.”⁴ In terms of the employer-employee relationship, it might be logical to set the upper limit of the family farm at the point where more than half the work is done by hired labor, if this statement holds true for all farming areas.

A rather close parallel can be drawn between the kinds of agri-

indicates that a family farm might have three hired men or more, there is a statement earlier on the same page that the family does most of the farm work on the family farm.

³ Edgar Thomas. *The Economics of Small Holdings*, Cambridge University Press. 1927, page 2.

⁴ Louise Howard. *Labour in Agriculture*. Oxford University Press. London. 1935, page 32.

cultural organization and the different industrial systems. Thus, the family farm might be compared with the handicraft system, and large-scale farms with the factory system; the essential distinction being that, in the handicraft system and on the family farm the worker, even though he may use power tools, "is not paced by the machine."⁵ In other words, the direction and control of production is largely in the hands of the worker. One might also find a parallel to the putting-out system in certain western areas where farmers contract to fatten cattle and sheep belonging to others, leaving the marketing to the owners of the livestock.

While economic historians seem to be in general agreement as to the essential characteristics that distinguish the forms of industrial organization, they usually do not attempt to establish precise boundaries between them. It is recognized that individual producing units may, at any one time, possess some of the characteristics of one system and some of another, and that over a period of time there may be some change in the characteristics of an entire system.

When precise definitions have been needed they have been coined to meet the problem at hand. For example, in order to administer factory laws, it has been necessary from time to time for "factory" to be defined, and there is general recognition that these are working definitions phrased for specific purposes.

In the field of agriculture there is still a tendency to grope for a single, precise, definition of the family farm that will serve all purposes. There is also a contrary tendency to use the term without any definition at all, or in a vague way that makes its meaning incomprehensible. Thus it is not uncommon for someone to say "I favor the family farm, and by family farm I mean one on which a family can make a living" or to include a statement like this in a definition: "It is not so much a unit or a quantity as it is an operating relationship whereby a farm family earns a satisfactory level of living and a substantial degree of security."⁶ Sometimes operator ownership is made a requirement of the family farm. A recent publication of the United States Chamber of Commerce, with no attempt at definition, identifies the family-type farm with full-time low-income farming and seriously questions its value to society.⁷

⁵ From definition of handicraft system. *Encyclopedia of the Social Sciences*, Vol. 7.

⁶ C. S. Hoffman. *Land Policy Review*. June 1942, pp. 25-27.

⁷ *Variations in Farm Incomes*, Agricultural Department, Chamber of Commerce of the United States, March 1945, pp. 20-21.

To avoid all this confusion there is need for agreement on the fundamental nature of the family farm. But it must also be recognized that to meet specific needs several purposive definitions may be in use, each of them correct as long as it is consonant with the general functional concept. A family size farm, for example, is a particular kind of family farm.

It would seem that the most defensible concept of the family farm would be in terms of degree of control and direction over the worker. A farm should not be called a family farm if most of the labor is employed under conditions similar to industrial employment.

This concept does not provide for any lower limit to the size of family farm. Subsistence farms, part-time farms, and other small scale units of production are family enterprises fully as much as larger family units. However, several sub-classes might be recognized, such as part-time, retirement and subsistence farms. The larger family farms might be placed in one or more groups of "family-commercial" farms, a term that has been suggested for family farms from which sales of products in commercial markets are fairly significant.⁸

Purposive Definitions

Those who favor the encouragement of family farms are usually not particularly concerned with the characteristics of the family farm *per se*. They are more interested in describing the kind of farm that will best further the goals of family farming: adequate incomes; maintenance of the soil; thriving rural communities; political stability. In other words, they have in mind only a part of the whole category of family farms and they define the family farm in terms that apply only to the special group they are interested in. This fact is not always recognized and is responsible for much of the confusion about the nature of the family farm.

One of the most common of these definitions is in terms of adequate income, but this by itself is not a satisfactory measure. To arrive at "adequate income" the usual approach is to set up a list of goods and services a typical family should have, determine the income needed to cover the cost of these, and then describe the size and type of farm that will give this income with average manage-

⁸ Benedict, Elliott, Tolley and Taeuber. "Need for a New Classification of Farms," this JOURNAL, XXVI (4), p. 702, November 1944.

ment. Setting up the essential needs of families is a rather arbitrary procedure.⁹ There is wide variation between regions and individual families in the goods and services the families themselves consider essential.

There is great variation in the incomes different farmers will obtain from identical farms—"no size of farm is large enough to insure a profit"¹⁰—therefore, some level of management must be specified in an "adequate income" concept. Proper size of family farms according to any income concept would vary with changes in prices and costs. At any one time the size of farm that would be considered adequate would depend upon whether it was owned or rented and whether mortgaged or free from debt.

Most of the definitions of family farms in which adequate income is used as one of the criteria are noncommittal with respect to the precise amount of income needed. Many of them go only so far as to say that such a farm should provide a "satisfactory living" or an "acceptable living." Even those which attempt to be more specific leave a great deal unsaid. The following definition, which uses a "good living" as one requirement of the family farm is typical of several of this kind.¹¹ "By a good living we mean one that enables the family to be well clothed, to enjoy an adequate diet, to educate the children, and to participate in community affairs." Does this definition mean that the family can afford to buy most of its clothing ready made or must it be made at home? Is the adequate diet one of minimum cash cost, or does it permit a wide variety of foods? Does education include the cost of college training for the average number of children? These questions illustrate the difficulty of framing a specific and generally acceptable definition of adequate income.

One approach, developed in one of the Columbia Basin irrigation studies, avoids some of this difficulty.¹² This method is based on actual expenditure patterns of families in a given area. These families are arrayed according to their net farm incomes in order to determine the income level at which income and expenditures for living are about equal. It is suggested that this might set a lower

⁹ "Such budgets rest on slight scientific or pragmatic foundations. The exception is, of course, food." Lloyd Fischer, "What Is a Minimum Adequate Farm Income?" this JOURNAL, XXV (3), p. 662. August 1943.

¹⁰ G. F. Warren. Opus cit., page 244.

¹¹ J. G. Morgan, in *North Dakota Farmer*, Dec. 8, 1945, page 20.

¹² Lloyd H. Fisher, Opus cit., pp. 662-670.

limit to the income objective. At a considerably higher income level a point is reached beyond which expenditures for living increase very slowly.¹³ This, it is suggested, might be taken as an upper limit to the income objective since further increases in income would largely be saved.

The point at which income and expenditures are equal represents the result that would be attained at a given income level on the average. Many families at this level would be operating at a loss. Therefore it is suggested that a desirable minimum income might be the one at which the greatest net number of "solvent" farms would be expected. That is, at each given income level, the number of expected failures should be subtracted from the expected successes. The effect of this would be to increase the minimum income level somewhat.

This procedure for estimating adequate income should if carefully applied give more realistic results than the use of an expenditure budget. The sample of families to be used in arriving at the minimum income level would have to be drawn with care so that they would accurately reflect the expenditure pattern of the kind of families under consideration. Thus, if the problem were to establish adequate sizes of farm for an area of new settlement, like the Columbia Basin, the sample should be representative of the families of new settlers with respect to age, education, family composition and other characteristics. Also, in establishing a desirable minimum income level, it might be advisable to depart somewhat from the observed expenditure pattern. It might be socially desirable to allow for some increase in expenditures for education and medical care, for example, particularly in low-income areas.

One of the difficulties in using adequate income as the sole measure is that it is not closely related to the technological aspects of farm production. A farm might return an adequate living but not furnish adequate employment to the family. It might also be inefficient in the use of equipment. For example, a farm might return an "adequate income," but be too large to be operated by one tractor and too small to justify ownership of two.

The public land laws that deal with the establishment of family farms are not explicit with respect to the kind of family farm that

¹³ While Fisher, in the article cited, refers to this "point," most consumer expenditure data show the proportion of income spent for family living to follow a curve as incomes increase.

is expected to be developed on these lands. In general, however, it appears that the objective of most of these laws has been one of adequate income—providing for the maximum number of families that could be supported on the public lands in a reasonable degree of comfort. Even the various Reclamation Acts, which go farther than other public land acts in granting administrative discretion with respect to desirable sizes of farms, mention no criteria other than that the limit of acreage should be that “which may be reasonably required for the support of a family upon the lands in question.”¹⁴

Another concept of the desirable size of family farm is in terms of what is called the “family-size” farm. Usually, this is intended to mean the size of farm that can be operated with the labor of the typical farm family, with only incidental hired help in peak seasons. Sometimes further qualifications are introduced, such as, adequacy of income and maintenance of the productivity of the farm. When qualifications such as these are included it is quite common to speak of the “family-type” farm. For example, the Committee on Postwar Agricultural Policy of the Association of Land-Grant Colleges and Universities states that a majority of farms should be family-type farms—“on which the operator, with the help of his family and perhaps a moderate amount of outside labor, can make a satisfactory living and maintain the farm’s productivity and assets.”¹⁵

As commonly used, no clear distinction is made between the terms “family-type” and “family-size,” and almost identical definitions have been used to describe both. “Family-type” is sometimes used in a sense synonymous with family farm. Occasionally, operator ownership is considered an essential requirement of “family-type” farms.

The concept of “family-type” farms used in the Farm Ownership Program merits special consideration, because it presents a measure that is being rather extensively used. Something over 40,000 family farms have already been financed under this program.

The Bankhead-Jones Farm Tenant Act provides for the establishment of eligible families upon “family-type” farms. As defined in the FHA regulations, this means “a farm which furnishes full

¹⁴ Reclamation Act of 1902, Section 4.

¹⁵ *Postwar Agricultural Policy*. Report of the Committee on Postwar Agricultural Policy of the National Association of Land-Grant Colleges and Universities. October 1944, page 30.

productive, year-round employment for an average farm family and one which an average farm family can operate successfully without employing outside labor, except during brief peak-load periods at planting or harvest time. In individual cases allowances may be made with respect to employing outside labor while children are too young to be of much assistance or after they have grown up and left home. A farm on which a tenant family will be expected to reside and supplement the labor of the owner and his family or on which an average family would require hired help a considerable part of the time is not a family type farm. . . .” It is further stated that these farms should “have capacity to yield incomes which will maintain an average farm family according to acceptable living standards, pay annual operating expenses, pay for and maintain necessary livestock and farm and home equipment, and pay off Tenant-Purchase and Farm-Enlargement loans. . . .”

Basing the desirable family size farm upon use of labor as well as adequate income is more satisfactory than using income alone. It might be argued that a farm can be of “family size” and employ somewhat more hired labor than is allowed in the foregoing definition. The requirement of “full year-round employment” would be difficult or impossible to meet with some systems of farming.

Dr. O. E. Baker advocates another kind of family farm which he refers to as the “two-man” farm, one that furnishes productive employment for two able-bodied men for most of the year. This is necessary, he feels, in order to encourage a grown son to stay on the farm until the father is ready to retire. If the children are born when the father is between 25 and 35 years of age they become of an age to start out for themselves when the father is between 45 and 55. It may be 15 or 20 years before the father is interested in relinquishing the active operation of the farm. It is during this period that the children become established on other farms or in other lines of work. When the father retires or dies no direct heirs are in position to take over the operation of the farm.¹⁶

It is held by some that keeping a farm in the family is more dependent on the family than on the farm. A recent Wisconsin study seems to indicate that where families are actively interested in accomplishing this end, relatively small farms will serve the purpose.¹⁷

¹⁶ For a discussion of the 2-man farm and continuity of tenure, see O. E. Baker, in Baker, Borsodi and Wilson, *Agriculture and Modern Life*. Harper & Bros. 1939, page 169.

¹⁷ K. H. Parsons, and E. O. Waples. *Keeping the Farm in the Family*. Wis. Research Bul. 157. September 1945.

In the area studied, an eastern Wisconsin dairy farming section, the attitude of the family together with incomes that were adequate to support the operator's family and his parents in modest comfort, were apparently more important considerations than the amount of work to be done.

Another approach to the desirable size of family farm is in terms of a "unit of organization."¹⁸ This approach first considers those factors of production which can be used only in fixed quantity or multiples thereof—one man or one 3-plow tractor, for example. Next, the optimum input of variable factors is added to the fixed factor. For example, 1 man and 16 milk cows, or one man and 1,500 laying hens. A lack of ready divisibility may apply to more than one factor, of course, so that the unit of organization may have to be stated in terms of an efficient combination of two or more elements. The unit of organization for a wheat farm might be 1 man, a 3-plow tractor, and a 12-foot combine. This given unit would then determine the proper acreage for the farm, although the possibility for improving the divisibility of factors through custom or cooperative use must not be overlooked. Moreover, some factors that might appear to be readily divisible may not be for institutional and other reasons. Land, for example, may be obtainable only by the quarter section or some other unit.

The "unit of organization" approach, if not used in conjunction with other criteria, takes into consideration only production efficiency. The much-abused term "economic unit" is usually defined in terms of some sort of unit of organization. While the unit of organization is helpful when properly used, it can be misleading if sole reliance is placed upon it as a guide to desirable sizes of farms. For example, a Montana study¹⁹ indicates that there are at least three reasonably efficient sizes of 1-man wheat farms, each based on a different unit of organization. The smallest, a 1-man, 3-plow tractor farm, has an optimum acreage of 800 acres. For a 1-man, 4-plow tractor unit, the optimum is 1,100 acres, and for a 1-man, 6-plow tractor combination the optimum is 1,800 acres. These are the acreages for each unit of organization which result in lowest cost per acre, assuming that quality of management is commensu-

¹⁸ For a more comprehensive discussion of the unit of organization see H. C. Taylor, *Outlines of Agricultural Economics*, Macmillan Company, 1935, page 175.

¹⁹ E. A. Starch, *Farm Organization as Affected by Mechanization*. Mont. Agr. Exp. Sta. Bul. 273. 1933.

rate with volume of business in each case. However, a comparison of per-acre costs for the three optimum acreages shows for the period studied a cost of \$9.34 per crop acre for the 1-man, 3-plow tractor unit; \$8.42 for the unit with 4-plow tractor; and \$7.02 with a 6-plow tractor.²⁰

Only a small proportion of Montana wheat farms are as large as the most efficient of these. The average size of cash grain farms in Montana, as reported by the 1930 Census, was 795 acres, of which 253 was cropland, 106 plowable pasture, and 255 other pasture. Only 24 percent had 1,000 acres or more, including land not cropped. While the average size of wheat farms has increased since 1930 the change has probably not been great. If lowest unit cost, assuming a fairly high level of managerial skill, were taken as the sole guide to desirable size of farm, it would appear that there is need for a large reduction in the number of wheat farms in Montana. However, this might introduce social costs that would far outweigh the gains in efficiency. In order to produce wheat at least cost, one might also conclude that there is no place in agriculture for any but the most efficient operators. Yet for many of the less efficient, smaller farms and lower net returns per acre might represent better income opportunities than any of the alternatives open to them. It should be recognized, also, that cost accounting methods may not accurately reflect real cost differences between farms of different sizes, particularly in the valuation of non-cash items such as family labor. The unit of organization is a useful measure, but it needs to be combined with other criteria, recognizing that a compromise must be made between efficiency and other objectives. Properly used, the "unit of organization" is a good point of departure because it gives recognition to the fact that increases in size of farm usually cannot be made in small increments; instead, they must conform to unit additions of indivisible factors of production, if the farm is to be operated efficiently.

Including the idea of a reasonably efficient unit of organization in the concept of the desirable size for family farms reduces the need for depending upon an arbitrarily chosen level of living. Income would need to be considered only in choosing between alternative units of organization or between a farm based upon 1 unit or made up of two or more. For example, if it is known that a 1-mule cotton

²⁰ This study does not give costs for farms using tractors larger than 6-plow nor for 2-tractor farms. These might, of course, show still lower per-acre costs.

farm in a certain part of Georgia²¹ will return family labor earnings of about \$300 with average management, while a 2-mule farm will return \$470, it is relatively easy to reach a practical decision as to minimum adequate income, considering family living needs and the number and size of farms in the area. This decision involves a choice between only two alternatives, or possibly three, if a larger size of farm were to be considered. For general farms a few more choices might have to be considered because of the possibility of changing the system of farming.

Operation of a 2-mule farm or of a 2-plow tractor might call for management of a higher order than would be required for a 1-mule farm or a 1-plow tractor, but it is unlikely that a moderate increase in scale of operations would require anything like an equal increase in managerial skill if not accompanied by a change in system of farming. This is a subject upon which there is need for further research.

Summary

In order to summarize this discussion, three definitions are offered.

"A *family farm* is one on which the farm operator makes most of the managerial decisions, participates regularly in farm work, and on which his role as employer of labor is minor relative to his other functions."

"A *family size farm* is one which, operated by a family of average size and managerial ability, will permit reasonably efficient use of labor-saving equipment and of the family labor force over the life cycle of the family."

The family size farm thus described might have some hired labor if needed to secure the efficient use of family labor or equipment. Efficient use of equipment does not mean that all machines must be used exclusively on one farm. Provision could be made for custom or cooperative use of expensive machines needed only a few days each year. For both labor and equipment reasonably efficient use would not mean the highest possible output per unit of input. It would mean rather that both family labor and equipment were utilized to the point at which marginal productivity was sufficiently low that under average conditions there would not be a tendency to increase the volume of business.

²¹ Ga. Expt. Sta. Bul. 221. Experiment, Ga. Oct. 1942, p. 28.

Since the definition provides for efficient use of family labor over the life cycle of the family, a farm, so defined, would have to be large enough to avoid the uneconomic use of family labor during the period when the effective family labor force was large. Since it does not specify a fixed labor force, volume of business might be varied considerably over the years. Thus, depending on the type of farming, a family size farm might be operated as a 1-man enterprise at some times and as a 2-man farm at others.

Keeping in mind the goals of family farming, a serviceable definition of the *socially desirable family-size farm* might be somewhat as follows: "The desirable size of farm for the family of average managerial ability would be a farm that would permit the reasonably efficient use of labor-saving equipment and of the family labor force over the life cycle of the family and provide with average management a labor and management return adequate to maintain a socially acceptable level of living."

Specifying the minimum income in terms of a labor and management return would permit one income standard to be used regardless of tenure and debt status.

This definition differs from the preceding one only in the additional requirement that the farm provide a socially acceptable living. In practice, a compromise would often have to be made between efficient use of labor and equipment and adequate income.

By relating desirable size of farm to a technical unit of organization it should be possible to determine a size of farm that with average management would not be under constant pressure to be made larger because it did not provide enough work for the labor force or equipment, or smaller because it required too much. It is true that technological changes would call for adjustments in the acreage, and organization of a farm so defined, but these adjustments would also have to be made on farms defined in other ways.

The first of the three definitions given here describes the whole array of family farms. The others refer to only two of the many special kinds that might be described. Other kinds would include, among others, the "subsistence farm" and the "minimum adequate income farm." Some of these may be just as socially desirable as the family size farm for some families. It must not be overlooked that there is a place in American agriculture for a wide variety of farm sizes to match the wide variation in managerial skill, available family labor, and personal inclinations of farm operators.

IMPACT OF TECHNOLOGY ON SOUTHERN AGRICULTURE

G. W. FORSTER

North Carolina State College of Agriculture

TECHNOLOGICAL processes and devices are beginning to affect Southern agriculture.¹ What the final outcome will be is not clear. It is possible that Southern farming is undergoing a radical transformation, the final results of which may be far-reaching. The "Old South" with its rigid social stratification, race prejudices, low income, and other defects may, under the impact of technology, completely disappear. Although such a revolution may be too much to expect of any force, technology or otherwise, the South is changing, and it is this subject of change to which I wish to direct your attention.²

Within the scope of this discussion are included all phases of technology as they impinge on farming. Some of these are quite obvious, such as those stemming from or associated with the wider use of mechanical power, the development and use of plant and animal hybrids, new and more effective sprays designed to control animal and plant pests and diseases, and boron and copper applied to the production of crops. There are other technical processes, the effect of which is perhaps less obvious and more subtle. The use of electricity, not only for power on the farm but for the farm home, is having a marked effect on the thought processes and habits of Southerners. The substitution of tractors for mule power is causing a change in the relation between the farm laborer, cropper, and the landlord. It will not be possible to trace the exact result of all of these things on the agriculture of the South. Attention will be centered on only those technologies which are of greatest immediate significance.

I

A logical treatment of this subject requires first a brief characterization of Southern agriculture. It is an economy built around the production of cotton, tobacco, peanuts, fruits and vegetables,

¹ The South as visualized in this discussion includes the following states: Alabama, Arkansas, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia.

² The ideas expressed in this article are the author's and not those of the North Carolina Experiment Station.

and small grains. This would appear to be a diversified agriculture, but the fact is that most types of farming areas are highly specialized. Livestock production, except in specific areas, is not an important feature of Southern farming.³

The economy is also characterized by low wages and low per capita returns to farm operators.⁴ These low incomes affect the standard of living, which is probably the lowest in the nation.

A distinctive characteristic of Southern Economy including agriculture is the division of the population into three groups—Negroes, poor whites, and a dominant white class. This horizontal division of the economy has far-reaching effects and implications. It may determine the extent to which Southern farming may be modified by the introduction of technologies. This characteristic, as I have observed it, tends to prevent the Southerner from considering any problem and its solution objectively. It is not the fact that a critical problem exists which is of major importance, but how its solution will affect the social stratification of Southern society. If perchance the solution of any problem, even a minor one, means that this stratification will be altered, then the Southerner will readily resign himself to the problem since the cure, in his opinion, is worse than the disease. And since most technologies do affect the social stratification, the South may face a difficult task in adopting technological devices and processes and in retaining, at the same time, these social distinctions.⁵

Another distinctive feature of Southern farming is worth mentioning. In the past the Southern farm operator has refused to accept in full his managerial responsibilities. In the main he has been content to let labor, and badly qualified labor at that, assume the management of the farm. This attitude, in part, is the result of his heritage and, in part, is the result of the great abundance of relatively cheap labor. But whatever the cause, he dislikes to assume the role of management, certainly in any effective manner. When asked why he does not organize and operate his farm in a more effective manner or adopt approved practices, his usual answer is that the labor available is so "sorry" that it is impossible to do

³ With the possible exception of butter all livestock products are increasing in importance and in some areas the income from livestock exceeds that received from crops.

⁴ *Income Parity for Agriculture*, Part VI, U.S.D.A., B.A.E., October, 1945.

⁵ If the impact of technology becomes so overwhelming as it did in the Industrial Revolution, then this social stratification would disappear or become greatly modified.

anything with it. "You can't train a 'Nigger' " is the reply when you suggest that perhaps the labor could be taught to do things in a different and better way. Yet the same labor can be trained to do effective work in other industries, professions, and personal services.

This refusal to accept managerial responsibility is also demonstrated in the usual treatment accorded laborers, croppers, and tenants. These are usually poorly housed. Even the most obvious improvements are neglected. The idea that possibly better treatment of the labor force would lead to more efficient production has never occurred to thousands of farm operators in the South. And yet, where considerate and farsighted landlords have accepted full responsibility for the management of their farms and have established reasonable landlord-tenant relations, the results, both as to productivity and income, have been highly satisfactory.

II

Any impact of technology on farming, if it is significant, ought to result in change. It will be essential, therefore, to study the changes which have occurred in Southern agriculture in recent years. For this purpose, the period from 1930 to 1945 will be used. True, changes prior to this period may be and undoubtedly were important, but changes since 1930 are more apt to be the result of technology than those which took place at an earlier date.

The first change which is of peculiar interest is the change in type of power used on Southern farms. The number of horses and mules on Southern farms in 1930 was 6,053,914 as compared to 4,220,210 in 1945, or a decline of 30 percent. On the other hand, the number of tractors increased from 121,596 to 430,834 during the same period, or an increase of 254 percent.

What has been the effect of the change in the type of power and equipment? Although cotton and tobacco are still the dominant crops, they are not so important as they were a decade or more ago. In 1930 these two crops occupied about 44 percent of the cropland, whereas today it is probably less than 25 percent. It cannot be said, however, that this change is the result of mechanization. Both crops, although mechanized to some extent, have resisted complete mechanization. This is true certainly of tobacco and for cotton except where the mechanical picker has been used. The reduction in the acreage of these two crops, therefore, must be the result, in part at least, of other causes, such as low prices and governmental control programs.

The acreage of small grains, where the tractor and power-driven equipment might be expected to have their greatest effect, has increased from 8.3 percent of the total acreage to 13.9 percent. This is an appreciable increase but of no great significance since small grains are relatively unimportant in the South. There has been a slight increase in the acreage planted to corn.

The average farm in most Southern states has increased in size. The increase has not been uniform. In some states such as North Carolina, Tennessee, and Louisiana the change in size has not been significant. For other states the change has ranged from 17 percent in Oklahoma to 31 percent in Texas.⁶

It has been said that mechanization will have a marked effect on the number of people on farms. This is undoubtedly correct, especially if the dominant crops such as cotton and tobacco can be completely mechanized. To date, changes in farm population have not been significant. Between 1930 and 1940 the farm population in six of the Southern states actually increased, in one it remained constant, and in four it decreased. It may be significant that the greatest reduction occurred in Texas and Oklahoma where perhaps mechanization of the dominant crops has been more pronounced. It must be said, however, that during the War period farm population in most states declined rapidly. Whether or not this is a permanent decline cannot at this time be predicted with any degree of accuracy.

III

This over-all picture is illusive. It is difficult to attribute the changes which have taken place in Southern agriculture solely to technology. For this reason, it will be necessary to examine data derived from specific studies. Although studies in this field are limited, there are a few which reflect the effect of the use of tractor on farming. Barlow and James made a study of this subject in the Northern Coastal Plains Area of North Carolina.⁷ These investigators found that mechanization did affect the organization of the farms. The changes, however, were by no means revolutionary. To quote from this report:

"The highly mechanized farms had approximately 58 percent of the crop acreage in row crops, 28 percent in small grains, hay, and soybeans,

⁶ The changes in size are probably greater than the census data indicate since the census definition of a farm is defective.

⁷ Frank D. Barlow, Jr., and H. Brooks James. "Mechanization in Relation to the Organization of Farms." Processed. Raleigh, N. C. August, 1944.

and the remaining 14 percent in cover crops. The distribution of crop acreage in Halifax County on all farms was 78 percent in row crops, 12 percent in small grains, hay, and soybeans, and 10 percent in cover crops. For the Northern Coastal Plains Area approximately 75 percent of the total acres was in row crops, 14 percent in small grains, hay and soybeans, and 11 percent in cover crops."

These results were found to hold true for the Central Piedmont of North Carolina in a study by Greene, James, and Dawson.⁸

"Farmers using workstock for power devoted a larger proportion of their cropland to row crops and a smaller proportion to small grains and lespedeza than did farmers using tractors. On the latter group of farms, 21 percent of the cropland was in corn, 46 percent in small grains, and 36 percent in lespedeza harvested for seed, in contrast to 23 percent in corn, 36 percent in small grains, and 22 percent in lespedeza for seed on farms using horses as a source of power."

The information now available indicates, therefore, that while minor changes have been made and others are likely to occur in the organization of Southern farms, there is little or no evidence that these changes, except perhaps in specific areas, are or will be of a revolutionary nature. The tendency to grow more acres of small grains is not, in itself, sufficient evidence that these crops will be a major factor in bringing about fundamental changes in Southern farming. Production in the great grain producing areas of the nation has been completely mechanized and the production from these areas should hold in check any tendency for the South to enter small grains production on a major scale. That this may be true is indicated by the fact that the acreage in small grains has tended to decline since 1910 although the value of these products when expressed at constant prices has increased.

It is quite possible that mechanization may effect changes other than those associated with the organization of the farm. If all of the farm operations could be completely mechanized, then farm products could be produced more efficiently. This possibility has led to the belief that both wages of farm laborers and profits to the operator would rise. Although this thesis would require considerable discussion, it can be said, somewhat dogmatically, that any change from partial to complete mechanization would not, ipso facto, increase wages and profits. Whether or not wages would be changed would depend on the alternative opportunities for farm

⁸ R. E. L. Greene, H. Brooks James, and C. G. Dawson. "Cost and Utilization of Power and Equipment on Farms in the Central Piedmont." Processed. Raleigh, N. C. September, 1946.

labor. Certainly any sudden shift to complete mechanization would mean a surplus labor supply and lower wages. Nor is it at all clear that profits of the operators would be enhanced, since there is a tendency for prices to follow costs. The lower cost resulting from complete mechanization would tend (other things remaining the same) to expand cotton production and to lower prices until a new price-cost equilibrium was established.

These limits to complete mechanization have been recognized by competent authorities. On this subject Welch and Miley⁹ express themselves as follows:

"The assumption that widespread shift to mechanical production of cotton will automatically solve the income problem of cotton producers seems to be rather widely accepted. Such assumption needs critical examination.

"As a result of the existence of a large number of independent production units and intense competition, most of the gains in more efficient production in agriculture are, sooner or later, passed on to the consumer. Furthermore, the gains that do accrue to the producer are usually capitalized into increased land values. If improvements were adopted by producers simultaneously, consumers would undoubtedly get most of the benefits of increased efficiency quickly, but one of the most significant impacts of technological advancement in agriculture, however, is that farmers do not and cannot apply at equal rates the results of science and invention. New and old techniques continue side by side—the one-horse plow and the tractor operate in adjacent fields; one-horse wagons and modern trucks transport cotton to the same market; and very likely, the power harvester and the laborer armed only with his bare hands and a sack across his back will both continue to harvest the American cotton crop for some time to come.

"As result of uneven adoption of new machinery, scientific knowledge, and new techniques, farmers who first adopt these undoubtedly gain while others are following at an uneven pace. As more and more farmers follow in more efficient production, there is always a tendency for prices to fall or other adjustments to be made that tend to reduce or eliminate the direct economic gain to the producers. Furthermore, there is usually a significant number of farmers who, for one reason or another, cannot take advantage of the new efficient techniques, and consequently, their already low standard of living may be still further reduced as price is reduced or as they are forced to make farm adjustments that bring lower returns than did the old system under the old price level. In the long run of course, it must be assumed that those not needed on the farms as a result of production efficiencies will find alternative employment either on or off the farm."

The extent to which a surplus farm labor would be created by mechanization is not known at present. However, some estimates

⁹ Frank J. Welch and D. Gray Miley. *Mechanization of the Cotton Harvest*. Mississippi Experiment Station *Bulletin* 420, June, 1945, p. 20.

have been made by the Southwide Cotton Committee.¹⁰ Keeping in mind that there are already seasonal surpluses of labor on most Southern farms, the Committee estimated that under partial mechanization (to the extent profitable) the existing (1943) labor requirements could be reduced about 20 percent for the Cotton Belt as a whole. For some areas, or under exceptionally favorable conditions, the labor required might be reduced by as much as 50 percent.

Estimates of this sort can be substantiated only in part from available research studies. Welch and Miley, although not presenting their results in physical units, indicate a marked decrease in the labor required in harvesting cotton by mechanized picking as compared to picking by hand.¹¹ Barlow and James¹² found that it required 134.5 hours per acre to perform all of the operations in the production of one acre of cotton under non-mechanized conditions,¹³ as compared to 107.9 hours when all operations with the exception of picking were mechanized. Thus partial mechanization reduced the labor requirements about 20 percent.

From these data can be derived an estimate of the labor requirements under complete mechanization. Assuming that it takes about 8 hours to harvest an acre of cotton by using a mechanical picker,¹⁴ then the labor requirements per acre under complete mechanization would be 33.8 hours or a reduction of 75 percent.

It would be possible to present similar data showing substantial reductions in the labor requirements of other crops such as peanuts, soybeans, corn, and small grains as a result of mechanization. It would appear, therefore, that, where cotton is the principal crop, mechanization is in the process of adding substantially to the surplus labor on Southern farms. However, since there is little evidence that tobacco production will be completely mechanized a part of this surplus labor will be needed to harvest this crop. This in itself may check the rate of mechanization especially on those farms growing both cotton and tobacco. That is, farmers growing both crops will face the problem of using a mechanical picker, and thus

¹⁰ See *Production Adjustments to Improve Farming Conditions in the South*. Processed. Raleigh, July 1946.

¹¹ *Mechanization of Cotton Harvest*, p. 18.

¹² *Farm Mechanization*, N. C. Exp. Sta. Bulletin 348, December, 1944.

¹³ These data should not be considered as absolutely correct since most farms used some mechanical equipment.

¹⁴ Information obtained from unpublished data by Alabama, Mississippi, and Louisiana Experiment Stations.

reduce the labor load, or picking the cotton by hand and thus have the labor available on the farm to harvest tobacco.

IV

Technological processes and techniques, other than those associated with mechanization, are also affecting farming. Among the most important of these is the increasing use of hybrid corn, of new sprays to combat plant and animal pests and diseases, of new drugs which affect the rate of animal metabolism, and of more lime and phosphates on crops and pastures. All of these undoubtedly will have a marked influence on Southern farming. Lest our enthusiasm, however, should get out of control, it is necessary to remark that these technologies, as those associated with mechanization, are not monopolies of Southern farmers. They are or can be applied elsewhere in the nation, and their use has the tendency to effect vertical rather than horizontal changes. If this should prove to be the case, the general pattern of the nation's agriculture would remain virtually the same. To be sure, efficiency in production would increase, but the comparative advantage of farm enterprise might not be greatly modified.

It may be worth while to explore this concept as it applies to certain technological improvements which have already been mentioned. Hybrid corn is perhaps the best example. It has been demonstrated that by the use of hybrids, corn yields may be increased by as much as 25 percent. These hybrids when accompanied by the "proper" use of specific fertilizers may produce yields in excess of 100 bushels per acre.¹⁵ The possibility of thus increasing the yields of corn has led to the optimistic view that livestock production can be greatly increased in the South. This deduction is at best only partially valid. When it is considered that the South is not a closed economy but is an integral part of the agricultural economy of the nation, there is no doubt that the price of corn and the price of animals and animal products in the "free" market of the nation will be influenced not only by corn grown in the South but also by corn produced in other parts of the country. If this be true, then the South will not have any distinct advantage in the production of corn over other sections in the United States, and hence the present

¹⁵ "Research and Farming." *Sixty-Seventh Annual Report of the North Carolina Agricultural Experiment Station*, 1944.

status of corn and livestock production should, generally speaking, remain in effect.

The changes which may occur in Southern agriculture, as a result of increasing the yield of corn, will depend, as always, upon the profitableness of competing crops. It is well known that corn in most, if indeed not all, sections of the South is a crop which must compete with cotton, tobacco, peanuts, soybeans, and small grains for a place in the scheme of farming. To the extent that the comparative advantage of corn, through the use of hybrids and proper fertilization, can be increased, its position is improved. But it is difficult, at least at this time, to believe that technological devices used in the production of corn will be so overwhelming as to effect any marked change in its comparative advantage. If this be correct, then corn will not be produced in sufficiently large quantities to provide the basis for a marked increase in livestock production.

There is, however, some evidence that small grains together with an increase in the quality and acreage of pastures may assist in livestock production. It is perhaps too early to determine the extent to which idle land can be converted into pastures or that small grain production can be increased. The cost of obtaining pastures has been high. In recent years, however, pastures have been improved by new technologies especially by the use of lime and phosphate and other fertilizers. The cost is less than previously thought possible. For example, for various areas in North Carolina it has been estimated that the annual cost of permanent pasture is approximately \$8.05 per acre. Since it will take at least two acres of permanent pasture with one-half acre of temporary pasture to maintain one unit of livestock, the total cost per animal unit per year will be about \$20.88.¹⁶

An observation should be made here about the prospects of alfalfa as a forage crop. Experimental work now under way indicates that this crop may become a factor in determining the place of livestock in Southern agriculture¹⁷. In the past this crop, when tried, has been a failure; but, because of use of minor elements, especially boron, it is now possible to obtain excellent yields. The results from experimental work, however, are not sufficient to permit any state-

¹⁶ It should be noted that it requires about five acres of unimproved pasture to maintain one unit of livestock under normal conditions.

¹⁷ *The Place of Livestock, Forage Crops, and Permanent Pasture in Farm Organization*. Mimeograph report, N. C. Experiment Station.

ment as to the ultimate role which this crop may play in Southern farming.

Some mention must be made of the probable effect on livestock production of new controls of animal pests and diseases.¹⁸ These are of special interest to the South since the climatic conditions are especially favorable to animal diseases, pests, and parasites. The new controls undoubtedly are and will be effective; and, to the extent that this is true, the comparative advantage of livestock production will be enhanced. Again, as with other technological developments, it is too soon to determine, with any accuracy, what the final effect of these new controls will be.

V

There are a number of conclusions which may be drawn from this discussion. Assuming that the data presented are valid, it is clear that Southern farming is being subjected to technological devices and processes. It is equally clear that certain changes in the organization of farms, in the size of farms, and in the efficiency with which certain operations are being performed are underway in the South. Changes which have occurred, however, do not appear to be of a revolutionary character. In no sense can it be said that systems of farming, except perhaps in rare instances, have been radically altered. There is evidence, as indicated by increases in the size of the farm, that the magnitude of the farm business has been augmented. This change, however, except perhaps in a few areas has not been startling. A much greater potential change is possible in the efficiency with which certain farm operations may be performed. This is especially true for those products the operation of which can be completely mechanized. However, with the exception of cotton, rice, peanuts, soybeans, and small grains, no great change in efficiency because of mechanization can be expected in the immediate future. The operations of some of the major crops, notably tobacco which requires a large outlay of labor, are not completely mechanized.¹⁹ And at this time there is no evidence that they will be mechanized.

These processes and devices which are somewhat more indirect in their effect are especially difficult to appraise. The use of hybrids, new sprays, drugs, and new farm practices unquestionably are af-

¹⁸ DDT and Phenothiazine.

¹⁹ Also true of fruits, vegetables, and peanuts.

fecting the agriculture of the South. There is no evidence, however, that any one of these or all combined will bring about anything more than an absolute improvement in Southern farming. The chief reason why this is apt to be true is that all of these devices and processes are available to all farmers of the nation. In order for them to affect Southern farming, they would have to provide some economic advantage to the South alone.

There is no evidence that the impact of technology will greatly modify the population stratification of the rural South. That it will have some effect can be granted, but that it will dissolve this situation is not to be expected. And it may be said that until a solution of this problem can be found, Southern agriculture will be subjected to one of its greatest disadvantages. Nowhere else in our agricultural economy does such a major stratification exist. The result is that farmers elsewhere, whatever other handicaps may be their lot, are not subjected to those disadvantages which emerge from race conflicts.

There is evidence that technology will have some, and perhaps a deciding, effect on management. With the increase in the use of the tractor and tractor equipment and other technological devices and processes it seems impossible for management any longer to refuse to accept its full responsibility. If management hesitates or refuses to do so, then there may be set in motion a profound change in Southern farming in which the present owners will be forced out of agriculture and be replaced with alert and progressive entrepreneurs. This change is being made in industry and it may happen in farming. The process, however, will be slow and attended with great exploitation of the soil and human labor.

The general conclusion which may be drawn from this discussion is that by use of technological devices and processes, the agriculture of the South may be able, through more efficient production, to improve markedly its economic position. This improvement, however, will not be sufficient to change its relative position in our agricultural economy as a whole. There is nothing in the facts, nor can any deduction be made from an analysis of the existing data, to warrant the conclusion that the South's income position will be advanced as compared to other segments of our agricultural economy.²⁰ Technology of itself is not the solution for the ills which beset Southern agriculture.

²⁰ Although the absolute income has changed markedly, the relative income position of the Southern states has not changed appreciably for the past 25 years.

THE MASTER SAMPLE PROJECT AND ITS USE IN AGRICULTURAL ECONOMICS*

R. J. JESSEN

Bureau of Agricultural Economics, and Statistical Laboratory, Iowa State College

THE word *survey* is based upon the two root words meaning *over* and *see* (according to our dictionaries), and is defined as the act of examining closely, or of determining the features of, as of land. Probably the best known examples of surveys are the federal censuses of population and agriculture. These provide detailed information for the social and political sciences in much the same manner that public land surveys, geological surveys and soils surveys serve the physical sciences.

The use of surveys, however, is not confined to the purely descriptive purposes which, for example, the censuses primarily serve. Indeed many studies of *processes*, such as the detection and measurement of cause and effect, have used the survey method as contrasted with the experimental method frequently employed in the biological and physical sciences. Because it is beyond the scope of this paper to consider the appropriateness of the different methods of study, it will suffice to state here that in agricultural economics the survey method is an old and well-established means of investigation, especially for descriptive purposes.

It is well known that the survey method has been criticized. The most relevant of the criticisms are:

- (1) surveys are costly;
- (2) the basic data are inaccurate;
- (3) the "representativeness" of surveys, based on samples, is questionable.

On the first point it may be said that if surveys are unnecessarily costly, it is not because they are *surveys* but because they are *poorly designed surveys*. During the past decade considerable progress has been made toward better use of survey resources by the adoption of appropriate sampling and other statistical procedures. By proper design many surveys can be made to give the desired information at far less cost than that of other methods.

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As to inaccuracies, there is sufficient evidence available to show that most data obtained by interview contain them. They occur because of poorly constructed questionnaires, unskilled interviewers, and, in agriculture, the farmer's faulty present as well as past knowledge of the details of his farm and its operation. Some progress has been made in detecting the nature and magnitude of these inaccuracies, and some measures to control them have been put forth. Overall survey accuracy can frequently be substantially increased by employing a good sampling design. By confining the survey to a relatively small sample, it is possible to select and train investigators more adequately, and to deal with other sources of error more effectively. It will often be found that the errors which have been introduced by sampling will be more than offset by the consequent reduction of non-sampling errors.

Except for the censuses, most agricultural surveys are samples of some sort. The sample feature may be explicit or implicit. It is explicit when the reader or user of the survey results is told that only a fraction of all farms in the area of inquiry were dealt with. Example: "A sample of 800 farms was selected to represent all farms in the state." It is implicit when the reader is given a statement like this: "although the survey was confined to Smith County it seems reasonable to conclude that similar results would be found in the whole southeastern area of the state." In this case Smith County, in a sense, is a sample of the "southeastern area of the state." In both of these cases, the survey was used to represent something larger or more general than the surveyed portion.

On the problem of making surveys "representative," or more accurately, of dealing with the sampling problem of surveys, much progress has been made during the past decade. A method of sampling known roughly as the "area method" has proved useful in a number of different kinds of inquiries and under a variety of conditions. This method, although not new in principle, is new in its applicability. Its use is being extended rapidly not only in this country but in other countries as well.

The area method of sampling has two features that help distinguish it from other methods: (i) the unit of sampling is a small area and (ii) each element in the universe under study is given a known probability (greater than zero) of being selected.

Using areas as sampling units is a means for providing each farm, or whatever is being measured or observed, a known probability of

selection in the sample. This provision is made in a very simple manner. Let us consider as an example a universe that involves all the farms in a state. We should like to have a sample of those farms which is reasonably representative of the state. From previous experience, and from consideration of the particular needs of the proposed sample design, it is decided that a sample of about 1000 farms will be needed. If a list of all farms in the state were available it would be a simple matter to draw the sample. But accurate lists of farms are rarely compiled; and if they are, it is usually found that the unit of compilation is inappropriate for the study at hand, or that the list is out-of-date. The universe of farms in a state, therefore, is never really known precisely and is constantly changing through time. On the other hand, since every state is adequately mapped, the area of a state can be determined accurately and doesn't change through time. By regarding the state's total area as comprising relatively small component parts (such as road-bound areas) then a universe of areas is created which (i) has a known number of area parts or segments and (ii) does not change through time. The universe of farms is related to the universe of areas by the fact that all farms must be located in some manner in the areas. The two universes are brought together for sampling purposes by a "rule of association." For example, all those farms are "associated" with a given area whose "headquarters" are located within its boundaries. Other rules can be used, but it is usually a desirable condition that each farm be associated with one and only one area regardless of its size, shape or other characteristics. If this sort of rule of association is followed, then the probabilities of sample selection that are assigned to the areas will also hold true for the associated farms. For example, if areas are selected with equal probability then farms are selected with equal probability. In fact, this is how farms are selected by the area method.

Let us suppose in our example that we have partitioned the state into 25,000 small areas or segments. Let us also suppose that we know that the total of farms in the state is approximately 100,000. A 1,000-farm sample then will include about 1/100th of the farms. If we select 1/100th of the 25,000 areas we shall obtain 250 areas with about 1,000 associated farms, that is, we "expect" to get 1,000 farms in our sample. Of course for any one sample it will be found that we may depart somewhat from the "expected" number. This is due to (i) sampling fluctuation and (ii) inaccuracy of our knowl-

edge of the total number of farms in the state. Actually the total number of farms can be estimated from the sample by multiplying the number of farms found in the sample by 100.

It may be seen from the example given above that in order to employ the area method of sampling some work is required in setting up the universe of areas. An idea of the work required will be given in the following brief description of the largest area sample of farms drawn up to the present time. This sample is known as the Master Sample of Agriculture; it was an integral part of the 1945 Census of Agriculture.

In this sample, the field under inquiry was the whole continental United States. It was partitioned into approximately 1,200,000 areas or segments averaging about 2.5 square miles in size, of which 1/18th, or 67,000, were designated as the Master Sample of Agriculture. These 67,000 segments located in every county of the U. S., contained the headquarters of approximately 300,000 farms. Any change in total number of farms since 1940 will be reflected by the sample within limits of accuracy which can be measured.

There are three features of the design of the Master Sample of Agriculture which will be appropriate to mention here. First the principle of sampling farms by sampling areal segments, discussed above. The second principle is that the size of the sampling unit should be as small as practicable. It is convenient to use as a measure of the size of an areal segment the number of farms whose headquarters are located within its boundaries. The average size of the units used in the Master Sample of Agriculture was 5 farms (1940 census basis): in Indiana the areal extent of these units averaged 0.71 square mile, in Nevada, 108 square miles and in the whole United States 2.5 square miles. In order to bring about some control of the size of individual segments, maps of counties were obtained which showed locations of dwellings in the rural areas and in many cases indicated whether such dwellings were farm or non-farm. By the help of the maps it was possible to construct segments having approximately the desired number of farms on each. This was one of the most important and costly operations of the project, and was justified on the ground that the more efficient sampling it made possible was worth the cost.

The third principle was geographic stratification. Distributing the sample as widely as possible seems to be particularly appropriate when (i) the sample is to serve a multitude of purposes, (ii) the advantages, if any, of alternative schemes have not been shown,

and (iii) the time schedule does not permit the construction and testing of more elaborate alternative schemes. Because all three of these situations existed, geographic stratification was adopted for the Master Sample of Agriculture. If time had permitted, it is likely that other schemes could have been found which would have been more suitable for some of the counties.

Although it is beyond the scope of this paper to discuss the details of the sampling procedure followed in preparing this sample, it may be of interest to describe briefly the general plan and some of the steps taken to carry it out.¹

In a sense the Master Sample of Agriculture consists of a collection of 3070 samples, that is, samples of each of the 3070 counties of the continental United States. The same sampling procedure was followed in each county. On highway and transportation maps of each county, obtained from the State highway departments, three zones were demarcated. In zone one were included all incorporated towns and cities regardless of size. The corporate limits of these places constituted the zone boundary. Zone two comprised all unincorporated villages and towns, and all populated areas appearing to have a population density of 100 inhabitants or more per square mile. Inasmuch as these places do not have legal or otherwise defined boundaries, it was necessary to establish outlines which would make the places definite territories on the maps. Boundaries for all such places were drawn on the maps in such a manner that (i) the densely populated areas were segregated as sharply as possible from the more open and sparsely populated surrounding country while (ii) making the boundaries identifiable by investigators in the field. Zone three consisted of the remaining portion of the county, this included most of the farming, forest, waste and other land. All territory regardless of use, whether populated or not, was classified into one of the three zones: (i) incorporated places, (ii) unincorporated places and (iii) open country.

The next operation consisted of partitioning the several zones into small areas. In the open country zone each area contained about 5 farms and not more than 10 families (farm and non-farm); in the zones of incorporated and unincorporated places there was no attempt to control the number of families, although each area was made so that it would include about 5 farms.

The areas into which the open country zone was partitioned serve

¹ For more detail see R. J. Jessen, "The master sample of agriculture: Part II, Design." *Journal Amer. Stat. Assn.* 40: 46-56 (1945).

as units for sampling either or both farms and persons, whether farm or non-farm. This portion of the sample is as useful, therefore, for a sample census of population as for a sample census of farms. This dual-purpose sampling unit is feasible only in the open country where the majority of the families are engaged in farming.

Table 1 presents some characteristics of the three zones for the United States.

TABLE 1. PERCENTAGE OF LAND AREA, FARMS, AND TOTAL POPULATION IN THE UNITED STATES IN THREE ZONES OF THE MASTER SAMPLE OF AGRICULTURE

Master sample zone	Land area (estimated)	Segments (sample areas) (actual)	Farms* (estimated)	Population* (estimated)
	(%)	(%)	(%)	(%)
Incorporated places	1.0	3.4	3.4	63.6
Unincorporated places	3.0	6.4	5.9	10.5
Open country	96.0	90.2	90.7	25.9
Total	100.0	100.0	100.0	100.0

* Based on the Censuses of 1940.

Each of the selected areas was delineated on a map to show clearly its exact position and extent. In order to aid the investigator in identifying the sample area boundaries, aerial photographs were obtained, wherever available; these were usually 3 inches to the mile in scale and showed identifying boundaries in considerable detail. The enumerator for the 1945 Agricultural Census was required to fill out a special supplemental questionnaire for all farms whose headquarters were found to be located within the sample areas.

The earlier ideas of a "Master Sample" envisaged a national cross-sectional sample of about 5,000 farms on which certain basic agricultural and other data would be obtained. For special studies, requiring additional kinds of data, field surveys would be made on subsamples of this sample. In studying relationships, efficient use could be made of these data by combining the special with appropriate basic information; and in some cases, by drawing upon information which may have been obtained on the 5,000 Master Sample farms of previous special inquiries. The Master Sample, therefore, was a scheme to (i) improve the representativeness of farm sample data, and (ii) assist in the integration of the collection and use of

these data when desired for more effective utilization in broad research problems. For example, much of the basic data for several research studies could be obtained on a single integrated survey. Special inquiries could be made on certain farms drawn from the basic set by utilizing information on the whole "Master Sample."

When this scheme was discussed with interested persons in the BAE, their demands and ideas were so great and varied that it became necessary to increase the size of the proposed sample to 300,000 farms. Also, the scope was expanded from a sample adequate to provide for the needs of small integrated research investigations to one competent for a full-sized sample census of agriculture. When the master sample idea reached this scale, the Bureau of the Census became interested, because it was making plans for the 1945 Census of Agriculture, and because it too had designs for sample censuses of both agriculture and population.

The two government bureaus and the Statistical Laboratory of Iowa State College joined forces and set November 1, 1944, as the date by which the maps and aerial photographs showing the selected areas were to be completed for use in the 1945 Census of Agriculture. The basic work of zoning the maps, partitioning the counties into the 1,200,000 areas, delineation of the 67,000 selected sample areas on maps and aerial photographs was done in Ames. The integration of these materials into the regular census operations was done in Washington by the Bureau of the Census. When census returns are tabulated and published, they will include estimates based on the Master Sample of Agriculture. The estimates will be for those items carried only on the supplemental questionnaire and asked of only those farms in the sample (and certain "large farms").²

Another use of this sample has been made recently by the BAE in its new sample survey of farms begun in January, 1947 and planned to be repeated quarterly. This survey will provide national and some state estimates of a number of agricultural items including number of farms. During 1945-46 the BAE experimented with a smaller survey known as the Quarterly Survey of Agriculture which was the forerunner of the present larger one. The Master Sample of Agriculture was also an integral part of a sample census

² In order to keep sampling variation to a minimum, the "large" farms were sampled completely; that is, a supplemental questionnaire was obtained from all such farms whether they were associated with master sample areas or not. Special rules were set up for defining and identifying farms which were to be regarded as "large."

of population, the preparation of which was authorized by Congress but for which field funds have not as yet been granted.

For general use, the Master Sample of Agriculture is somewhat limited. The bureaus of the Census and Agricultural Economics would like to guard against its overuse by controlling the kind and frequency of inquiries permitted on its sample areas. Moreover they wish to reserve these areas so far as is practicable for visits by their own interviewers. Many inquiries, therefore, will have to be taken on the 1,133,000 sample areas not in the Master Sample of Agriculture. Fortunately, when the Master Sample of Agriculture was being designed and prepared, considerable attention was given the problem of selecting subsequent area samples quickly and at low cost. Since the beginning of the project the basic county maps have been in almost constant use for drawing new samples. Many of these purposely avoided the master sample areas. These samples have been prepared not only for the BAE and the Bureau of the Census but also for other government agencies, as well as for colleges and individuals. Most of these have been for local surveys but some have been nation-wide. None have included all counties as did the Master Sample of Agriculture. Some were concerned with cross sections of the population rather than with farms alone. Still others were limited to special types of farms. Of course the sampling rates of these samples were different from the 1/18th used in the Master Sample. Despite this wide variety in type of inquiry and need for varying the design of the sample to fit the survey problem at hand, the master sample materials have proved to be adequate.

The kind of sample that may be provided for a number of state-wide surveys may be illustrated by this example. In the summer of 1945 it was believed advisable to prepare for Iowa a sample which could be used for surveys of families and farms in the state. It was to serve as a general purpose sample—one that could be used for a number of different kinds of inquiries including research investigations requiring cross-sections of Iowa's families, farms, consumers, etc. By preparing the sample far in advance of its use, it was possible to achieve the rather substantial gains in efficiency that come from careful and thorough planning—something which is difficult to obtain in hurried sampling designs.

Considering the various aspects of the problem—such as the kinds of variation existing in the state, the cost of carrying out the field work, the amount of sampling variation which could be toler-

ated, etc.—a sample consisting of 635 families including about 225 farms was regarded as adequate as a base. This was obtained by the plan summarized in Table 2.

TABLE 2. SUMMARY PLAN OF A GENERAL-PURPOSE SAMPLE OF IOWA

Zone	Total of number of		Number in sample		Sampling rate	No. of seg- ments (single sample areas) in sample	No. of families in sample
	Coun- ties	Places	Coun- ties	Places			
Open country	99	—	20	—	1/1,000	53	236
Rural places (all un- incorporated villages and all incorporated places under 2,500 population)	99	1,031	20	34	1/1,000	26	129
Urban places (all in- corporated places 2,500 and over in population)	—	99	—	17	1/1,000	54	270
Total	—	—	—	—	—	133	635

Maps and aerial photographs covering every sample segment were obtained and on these the sample segments were delineated to show the investigators precisely where interviewing was to be done. The procurement of these materials usually requires several months—one reason why it is advisable to begin the preparation of samples of this sort well in advance of actual use. The maps and photographs were cut and fitted so that they could be assembled in a standard size kit for field use.

This General-Purpose sample for Iowa has been used for several inquiries since its completion and it appears its usefulness will continue. During the summer of 1946 the sample was utilized for a survey of food preferences. This study was concerned with the respondents preferences on kinds of food, methods of preparation, menus, etc. Respondents consisted of young people who were 17, 18 and 19 years old and men and women 48 to 56 years of age. Because this inquiry was confined to persons of certain age groups, it was advisable to modify the original sample somewhat to make it more efficient for this particular job. This was accomplished by merely

enlarging the size of the sample segment to 3 times its original size (about 5 families) to about 15 families, an operation easily performed on the original set of materials. All families living within the enlarged sample segment were visited. The interviewers determined the age and sex of each member in order to learn where interviews were to be made.

The General-Purpose sample of Iowa was also used for a survey of Iowa farms to obtain information on the morbidity and mortality of farm animals. This study was begun in April, 1946. Each month the survey is made in a different set of five counties, resulting in quarterly visits to each farm—inasmuch as there are 4 sets of 5 counties in the entire sample. By carrying out the field work on this time schedule, it permits of cross-sectional samples of the state each month without undue interview burden on the sample farms. This inquiry was confined to the open-country part of the sample. The 53 open country segments are shown in Table 2. They contain about 236 households of which approximately 225 are farms.)

The General-Purpose sample of Iowa has already proved to be a useful device for specifying where surveys of cross-sections of Iowa can be made efficiently. It is expected that it will continue to be a useful device for carrying out many future investigations. These may include studies of consumer preferences and other marketing problems with which the Agricultural Research and Marketing Act of 1946 is concerned. In anticipation of these and other uses, a similar type of sample for nation-wide studies has been prepared for the United States.

The design and preparation of such samples as described above is certainly not limited to those having direct access to the Master Sample materials. Having access, however, greatly simplifies the task and reduces the cost. For those who are interested, the three agencies controlling the Master Sample materials, the Bureau of the Census, Bureau of Agricultural Economics, and Statistical Laboratory of Iowa State College, will give advice and help on sampling design problems and will assist in the preparation of specified samples at cost. Moreover, they are preparing some of their materials in such a way that they can be reproduced at a low cost for groups or persons desiring them. This will make them available to those who wish to have the benefit of the costly compilations and other materials in making their own sampling designs.

NOTES

THE USE OF "ADJUSTED CONDITION" FOR ESTIMATING YIELD PER ACRE

REPORTED condition of a crop is one of the oldest and the most reliable indications for forecasting yield per acre early in the season. The individual reporters report in percentage of normal. The weighted averages are prepared in State offices of Agricultural Estimates and are used generally for interpreting yield per acre. The condition is plotted on the X axis of Cartesian charts against yield per acre on the Y axis.

For certain crops during the time when cultivation is required, reported condition alone is not always a reliable indicator of final yield. In areas where rainfall may be excessive during the growing season, reporters tend to over-evaluate the outlook at such times. Vegetative growth rather than yield prospects tend to be reflected. The reverse is true in dry weather. Smaller plants with better root systems will usually produce a larger crop than is apparent, whereas succulent plants are seldom as productive as their healthy appearance would lead one to believe.

Some objective variables such as temperature and rainfall measurements have been used to explain the residuals from the regular charts of "Reported Condition vs. Board Yield."¹ The principal difficulty with this approach is that the data from many weather stations would not be immediately available when needed for current reports, and even if they were, the necessity of tabulation by districts and weighting by crop weights would "bank up" such an additional work load as to be impracticable of application in preparing monthly estimates if any number of crops were involved. In the case of rainfall even accurate and representative statistics might prove inefficient since crop progress is more closely related to effective rainfall than to actual rainfall.

As a substitute for a more objective type of measurement, another subjective figure, pasture condition, seems to offer a solution. Whatever bias there may be in reported condition of a crop should be, and seems to be, inherent also in pasture condition. This makes it possible to devise an easy corrective. Ordinarily pasture condition

¹ Board yield is the official yield per acre as adopted by the Crop Reporting Board.

is reported relatively higher than crop condition in wet weather; in dry weather pastures usually suffer more damage, and pasture condition, accordingly, is reported lower than crop conditions.

Pasture condition as an additional factor has been used in many studies during the past 10 to 15 years, and can be easily used to devise a factor for adjusting the reported crop condition. Any factor that could be used to adjust crop condition upward in dry years and downward in wet years would seem to deserve consideration for a number of crops.

The factor obtained by placing the crop condition in the numerator and pasture condition in the denominator is generally less than 1,000 in wet years and more than 1,000 in dry years. Multiplying reported crop condition by this factor gives an adjusted condition that meets the requirements indicated above as needed. Inflexibility is the principal objection to this type of adjustment. It is reasonable to expect that reported condition of a crop late in the growing season would be a truer gauge for estimating yield per acre than earlier reports, and hence would need less adjustment. Variations among crops and among States would also demand a method whereby the degree of adjustment would fit the particular crop in the particular State on a specific date.

The above objections can be overcome, and practically the same basic adjustment may be obtained with fewer calculations. The difference obtained by subtracting pasture condition from reported crop condition offers a preliminary or trial adjustment statistic. This figure is algebraically added to reported crop condition and provides the trial *adjusted condition* figure. This application lends itself to degrees of adjustment which may be readily determined with reasonable accuracy without mathematical calculations or extensive research.

To test for the needs of a given crop it is first necessary to re-weight district pasture condition figures for past years by the acreages of the crop being studied. Using the newly weighted State pasture condition figures with the State weighted crop condition figures, the trial adjusted condition is worked out. It is simply reported crop condition + (reported crop condition - pasture condition). A chart is then made "Trial adjusted condition vs. Board yield." The reported condition figures should then be entered in a different color on the same chart. It will be readily apparent whether the trial adjusted condition is better than the reported condition for estimating yield. A casual observation may then be

made to determine whether a point midway between the two condition figures for each year is an improvement over both sets of figures. If so, a 50-percent adjustment is indicated. Upon further study it may be observed visually that a 25-percent or 75-percent adjustment is still more appropriate. If the trial adjusted condition is better than the others, 150 percent or higher should be roughly plotted and considered.

In setting approximate adjustments needed, one should not overlook the fact that the highest possible correlation is not always desirable for a particular date since conditions later than the date under study may explain the residuals.

After determination of the proper adjustment needed, charts would be set up using adjusted condition as indicated for the particular crop in the particular State on a specific date. Generally, it is thought that large adjustments of reported condition would be needed only early in the season—in some cases an adjustment as much as 300 percent, or reported condition crop +3 (reported condition crop—pasture condition) appears to be needed. In general, as the season progresses lower adjustments are needed.

Illustration: Sweetpotatoes in Alabama furnish a good example. The following table gives the data for August after re-weighting pasture condition with sweetpotato acreage weights.

Year	Basic data			Trial adjusted condition* (Col. 1+ Col. 3) (4)	Final adjusted condition after determination of approximate degree of adjustment needed	
	Sweet-potato condition reported (1)	Pasture condition (re-weighted) (2)	Trial adjustment Col. 1+ Col. 2) (3)		Col. 3×1.25 (5)	Adjusted condition (125%) Col. 1+ Col. 5
	%	%		%		%
1934	78	78	0	78	0	78
1934	78	72	+ 6	84	+ 7	85
1936	63	68	- 5	58	- 6	57
1937	77	76	+ 1	78	+ 1	78
1938	82	86	- 4	78	- 5	77
1939	76	84	- 8	68	-10	66
1940	64	86	-22	42	-27	37
1941	77	85	- 8	69	-10	67
1942	77	81	- 4	73	- 5	72
1943	82	80	+ 2	84	+ 2	84
1944	70	67	+ 3	73	+ 4	74

* Condition Sweetpotatoes+Condition Sweetpotatoes—Pasture Condition.

The above table is self-explanatory except in Column 5 in which 1.25 is used. It will be noted that on the first chart both the trial adjusted condition and the reported condition are plotted against Board yield. A casual examination will show that the trial adjusted condition correlates much more highly with yield than does the reported condition. Upon making entries (X) for each year half way between the reported and trial adjusted condition figures it will be seen that the trial adjusted condition is better than the 50 percent adjustment. If further rough projections are made on the chart (Δ) for 150 percent adjustment it will appear that the optimum adjustment lies somewhere between 100 and 150 percent. If 100 or 150 percent were adopted the results would probably not be widely different since changes are relative and the figures are merely indexes. Adopting 125 percent, the last 2 columns above were set up. The second chart shows the condition adjusted for approximate maximum utility. An adjusted condition would probably not be needed in irrigated areas or in States where rainfall during the growing season seldom approaches the optimum for a crop. It seems to apply particularly to the States east of the Mississippi River. Crops whose products are not visible to the observer—such as peanuts, potatoes, and sweetpotatoes—are most easily misjudged. Another problem crop, tobacco, shows large succulent leaves in wet years which weigh out relatively light, whereas in dry weather smaller leaves are surprisingly heavy. There would seem to be little validity in using adjusted condition for estimating yield of corn for silage or for such crops where bulk and stalk would correlate highly with yield per acre.

In the case of peanuts, estimates of yield per acre are not made until August 1. The August 1 charts "Reported Condition vs. Board Yield" are erratic. On the other hand even July adjusted (50 percent) condition charts for peanuts in Georgia, Florida, and Alabama provide a fairly reliable basis for yield forecasts. The August 1 charts, using adjusted (50 percent) condition, are much more serviceable than reported condition alone in these States as well as in North Carolina and Virginia.

Early season cotton yield studies for a number of years have included factors other than condition. The percentage of boll weevil infestation was the factor that explained most of the residuals from the "Reported Condition vs. Board Yield" chart. In order to prove or disprove the efficacy of condition adjustment for cotton along

the lines indicated above, reported condition for Georgia and North Carolina as of August 1 were adjusted. The adjusted condition charts were found to provide better bases for estimating yield per acre for cotton in both States than the reported condition, and in Georgia the adjusted condition chart (75 percent) provided about as much precision as was provided by the use of the boll weevil infestation as another variable. The following table gives the data for Georgia cotton.

Year	Reported condition cotton	Reweighted condition pasture	Cotton condition minus pasture condition (1-2) (3)	Trial adjusted condition (100%) (1+3)	Adopting 75% 75×Col. 3	Adjusted condition 75% (Col. 1 +Col. 5)	Average yield per acre
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1934	% 69	% 72	- 3	% 66	- 2	% 67	lbs. 216
1935	73	75	- 2	71	- 1	72	235
1936	60	48	12	72	+ 9	69	228
1937	75	75	0	75	0	75	270
1938	72	86	-14	58	-10	62	204
1939	73	78	- 5	68	- 4	69	228
1940	73	81	- 8	65	- 6	67	251
1941	62	84	-22	40	-16	46	166
1942	76	78	- 2	74	- 1	75	240
1943	79	82	- 3	76	- 2	77	253
1944	72	63	+ 9	81	+ 7	79	286
1945	76	85	- 9	67	- 7	69	256

Sugar beet condition on September 1 in Michigan apparently requires 25 percent adjustment. The August 1 reported condition of soybeans in Illinois is a very reliable indication of final yield per acre. A 25 percent adjustment, however, apparently results in some improvement in relationship.

Studies on the principal types of tobacco indicate the need for adjustment. Early condition figures for the principal types generally need rather high adjustment. One type in a late maturing area seems to require 200 to 300 percent but generally an adjustment somewhere near the trial adjustment appears to be needed early in the season. For most types, 25 to 50 percent adjustment seems indicated for the last condition reported before marketings get under way. There appears to be little if any reason for adjusting a condition figure after harvest is advanced and after reliable reports of yield are available.

This simple device offers promise of improving early season yield and production forecasts of crops for which little data other than reported condition are available. Fortunately, the availability of long series of comparable pasture condition figures in all States

provides an additional resource that can be profitably utilized by the method suggested herein. To be serviceable, pasture condition needs only to be re-weighted by acreage weights of the crop under consideration.

The promising results so far attained for the several crops and States upon which the method has been tried attest only to the soundness of the principles involved. It is anticipated that an even better approach than that presented here may be evolved and many additional refinements are possible. Similar results could be obtained by plotting reported condition vs. Board Yield, and on a second chart plotting the residuals against crop conditions minus pasture condition. Where pasture condition is higher, the figure would be negative. Due to its simplicity the technique presented here is better suited to the required rapidity of the monthly reviews. The suggested approach offers an immediate opportunity to improve on present estimating procedures in the early season for several crops. It supplies a means whereby both pasture condition and reported crop condition figures will gain added utility.

JOHN F. MARSH

Bureau of Agricultural Economics

COMMON GRAZING IN THE SHORTLEAF PINE— LOBLOLLY PINE—HARDWOODS PORTION OF SOUTH ARKANSAS

FREE grazing is the practice of allowing livestock to graze at large. In the South land against which no restrictions are made for grazing is generally known as "free" or "open" range. Here free range areas include mostly timbered nonfarm lands but also some farm lands which are not fenced. Farmers in free range areas normally fence only the fields used for cultivated crops and depend almost entirely on the unfenced land for pasture, particularly during the warm grazing season months, April through October. In many Southern States a relatively large percentage of the total land area is subject to free grazing. For example, in Arkansas in 1935 slightly more than one-half of the land area of the State was subject to this practice, that is, where it was not fenced for farm or other uses. Practically no changes have been made since 1935.

The free range areas are determined by an elimination process. All areas in which livestock are not prohibited, by stock laws or

stock law improvement districts, from running at large are in free range. Areas in which free grazing is prohibited are known as closed range.

A brief review of the experience of farmers with a slight modification of free range in a single, relatively small area in Arkansas may be of interest in explaining the advantages and disadvantages of the system. Hempstead County, in the southwestern part of Arkansas, can lawfully have no free or open grazing of livestock as the entire county was closed to this practice by Act 496 of 1919, as amended by Act 140 in 1923, Special Acts of the Arkansas Legislature. This is understandable since only about 70,000 acres, or 17 percent, of the total land area, excluding that in the U. S. Government's *Southwestern Proving Grounds*, is *nonfarm land*. This compares to a little over half for the Coastal Plains portion of South Arkansas taken as a whole. However, in parts of southern and southwestern Hempstead County there is common grazing of certain kinds of livestock by general consent of land owners and local citizens. There is such an area of approximately 3,000 acres in the eastern part of Township 12S, Range 26W, and the western part of Township 12S, Range 25W.

In 1920, about a dozen men living in the two townships created a common grazing area. Both white and colored residents were included. To avoid criticism and opposition, they secured verbal assurances to the following effect:

(1) That owners of the land to be fenced did not object. All owners of nonfarm forest land whose addresses could be ascertained, were contacted. Only one or two owners were not contacted.

(2) That the county judge would give permission to construct two cattle guards on the road passing through the area to be fenced.

(3) That the rural mail carrier and other people frequently traveling this road had no objection to installation of the cattle guards.

An area of 3,030 acres was first enclosed in 1920. Two cattle guards and $1\frac{1}{2}$ miles of a three strand barbed wire fence were required to enclose this acreage. No more fencing was required because existing farm fences served to complete the enclosure. When the area was first enclosed 500 acres of farm land inside the 3,030 acres were excluded from the grazing practice. In 1946 only 380 acres were thus fenced off inside the gross area.

Although in a closed range county and restricted except for livestock of the 12 residents involved, this area is for all practical pur-

poses a free grazing area. It is referred to, however, as a common grazing area. Common grazing has been practiced here long enough to present a fair idea of the results now being obtained under this type of system, which is similar to that practiced throughout most of the Coastal Plain of south Arkansas. So far as is known the residents participating in this grazing arrangement constitute a fair sample of those in the free range areas of the southern part of the State.

Ownership and Nature of Land in Common Pasture

Of the 2,650 acres being used as range in 1946, 1,830 acres were nonfarm forest land owned by 13 different persons or groups in five different states. The remaining 820 acres were farm land, part of it in a state of semi-abandonment, although they were under agreement with the Agricultural Adjustment Administration in 1942.

Of the 2,650 acres of land subject to common grazing, 340 acres were open land in 1939 when the latest aerial photographs were made. That is, approximately every eighth acre was unimproved, open pasture and seven out of each eight acres were forest land. In estimating the amount of open land, consideration was given to the open land on a school ground, and to the rights-of-way of a railroad, power line, and highway crossing the range area. By 1946, seven years later, a very appreciable amount of this open land had grown up in young timber. That this is true is indicated by the fact that local citizens say that little of the land has burned since 1936, and there is now only about one-half as much grass in the area as there was 15 to 20 years ago.

Livestock Grazed on Common Pasture

Cattle and workstock are grazed on this range area, while hogs, sheep, and goats are excluded. The cattle are grazed principally from April to October inclusive, with only a very few on the range during winter months. Workstock are grazed here mostly in the latter part of the summer and fall after crop cultivation is completed. It is estimated¹ that in the last three years a general average of 250 head of cattle and 30 head of workstock were grazed on this range pasture, the cattle using it 7 months and the workstock the

¹ Estimates are based on statements made by three of the residents using the pasture, two of these being among the principal users.

latter $3\frac{1}{2}$ months of the grazing season. The numbers grazing on the range in winter season are so small that they can be ignored. It is estimated that the general average weight of the cattle when turned on the range in April is 400 pounds. Such animals are estimated to gain 200 pounds in two out of every three grazing seasons and only 50 pounds in one out of every three seasons. Thus, the usual or average gain in pounds per head of cattle on the range may be estimated to be 150 pounds per grazing season of 7 months.

It is assumed that the 30 head of workstock are approximately full animal-units and that although they are on the range only one-half the season, they consume grass equivalent to that of 30 head of cattle. Thus, it is concluded that in one season the equivalent of 280 head of cattle, weighing 400 pounds at the beginning of the grazing season, graze on the range and that they make a total gain of 42,000 pounds (280×150). The stocking rate is 9.5 acres of range land to each head of cattle. If the livestock were all the equivalent of full grown cows of 800 to 900 pounds they would require around 19 acres of this type of range. It should be recalled that 12.8 percent, or a ratio of about one out of every 8 acres of the range land, was open or abandoned fields in 1939.

If the 42,000 pound cattle gains are apportioned over the 2,650 acres common range, they amount to nearly 16 pounds per acre. Assuming a price of 6.25 cents a pound which could be received for rather low quality beef cattle in the fall of the last three or four years, the gross return from grazing averaged \$1.00 per acre.

It is not known how much income the absentee owners of the nonfarm forest land have been receiving from the growth of timber. It has been customary for them to sell their timber as stumpage, generally to be cut on a diameter dimension basis. A considerable amount of stumpage was removed about 1940. Probably the rate of growth of saw-timber is no more than the 192 board feet per acre which was found for all forest land in the Coastal Plain of Arkansas in 1936 by the U. S. Forest Service.² Valuing the stumpage at \$10.00 a thousand board feet, the annual growth per acre of forest land would gross \$1.92. The sale of a small amount of cordwood from tops and thinnings should raise the amount to \$2.00. Thus, grazing is providing roughly one-half as much gross income as is the timber alone.

² Southern Forest Experiment Station, New Orleans, Louisiana, *Forest Survey Release No. 27*, 1937.

Advantages and Disadvantages of the Common Range

There are both advantages and disadvantages in using forest land as common range such as this scheme provides. Arguments both for and against the system were advanced by those whose livestock used the range and the owners of the nonfarm forest land involved. The more important of the arguments are summarized as follows:

Advantages. The advantages of this communal ranging of cattle and workstock appear rather apparent to the local settlers who own the livestock. A dozen settlers are permitted to run from 9 to 50 head of cattle and/or lesser numbers of workstock on range land which they otherwise could not do if some such arrangement as this were not made. The summer gains generally amount to the equivalent of 3,500 pounds of beef per farmer.

An advantage of the system to the owner of the nonfarm forest land is that it assists in preventing theft of timber. The land is now completely enclosed by fence as it would not be without this grazing arrangement. The fence provides some protection against trespass. The owners of the livestock using the range are sufficiently aware of the interests of the timber land owners to report any trespassing which they see as they ride the range looking after their stock. Protection against trespass is a significant item to the 13 nonresident owners involved.

There is a prevalent belief that the owners of livestock are prone to burn free range so as to clear out the underbrush and make room for more grass. This particular area was said to have burned over in 1929 and 1936. However, when the State forest ranger and the towerman overseeing this part of the State were asked separately to point out the parts of their territory in which they had the greatest concentration of fires, each pointed out at least three localities, excluding this one, that he considered "hot" spots. When asked about this common range area in particular, each said that he had noticed no concentration of fires occurring there. Neither of these forestry officials had worked in this area more than 4 years. The fact that the area burned over rather generally in 1929 and 1936 indicates the possibility of a fire hazard, although the latter year was a dry one of wide-spread fires. As the undergrowth of trees crowds out the grass, there is a strong temptation on the part of those running livestock on a range to burn it. This is a long-established custom. Nevertheless, an absentee owner of nonfarm forest

land in this range area stated that he considered the present arrangement for grazing the land to be a distinct advantage to him in that it acted as a fire control measure. He contended that grazing kept down grass and briars and that when fire did break out it would be less severe than were the land not grazed. This owner was resigned to the fact that fire would break out sooner or later. He said that he would prefer heavy grazing to no grazing at all.

When the farmers, as well as one of the owners of the nonfarm forest land, were asked for their opinion as to whether or not the grazing was detrimental to the reproduction of the forests, they said that it was not. They emphasized that cattle and workstock seldom browse on the desirable species of trees in this area, meaning the shortleaf and loblolly pines.³ If this range area included much bottomland where hardwoods were the predominant species, the damage to timber from grazing would be more severe than at present. None of the men interviewed recognized the possibility that the tramping of livestock might be detrimental to timber reproduction. This point can be determined better under controlled experiments.

Disadvantages. There are important disadvantages to this communal grazing scheme which the cooperating farmers acknowledge. The disadvantages are most apparent to the larger and probably more progressive operators. Chief among these are a set of circumstances which tend to result in inferior livestock being run on the range. They say that many desirable practices cannot be employed on the range, and one of them stated that if additional land were available, he would prefer to buy it and develop improved pastures for his livestock. The unfavorable circumstances may be expressed as follows:

³ R. S. Campbell, of the U. S. Southern Forest Experiment Station, New Orleans, Louisiana, states that foresters, stockmen, and extension workers generally indicate that when ranges of the Deep South are moderately stocked, stock does little damage to pine seedlings, but may graze some hardwood seedlings, especially in the spring, when buds are tender and growing. R. S. Campbell, "Grazing Cattle on Southern Pine Forests," *Southern Lumberman*, Dec. 15, 1944. Results of experiments by the North Carolina Agricultural Experiment Station and the U. S. Department of Agriculture indicate that cattle grazing affords some protection to the pines of the Coastal Plain through reducing the forest fire hazard and by reducing hardwood competition. J. E. Foster and H. H. Biswell, "Cattle in the Woods," *Southern Agriculturist*, Nashville, Tenn., Dec., 1946, 76: 23. Likewise, in the ponderosa pine country of Washington, foresters, ranchers and lumbermen are joining forces to prove that livestock and seedlings can thrive on the same acres. Albert Arnst, "Stock Farm in the Woods," *American Forests*, Washington, D. C., July, 1946, 52: 307-309.

(1) No farmers make any effort to improve range that is grazed in common.

(2) Only one farmer has been willing to place a pure bred bull on the range.

(3) Control of breeding time is made difficult under this system.

(4) Control of diseases, for example, black leg is said to be more difficult on the range than on the farm.

(5) Theft and killing of livestock has been something of a problem on this common range.

(6) Ticks are more numerous on the range than on the farms.

(7) Breachy or roguish livestock are turned on the range in preference to the available pastures on farms.

Summarizing, the common practices in this communal grazing area have tended, as usual, to standardize around the poorest animal husbandry practices because there has been no way to compel the farmers who use such practices to improve their methods.

Conclusions

Grazing as practiced in the area discussed is a modification of the free grazing system prevalent over much of the South. The results are fairly representative of those obtained under the usual free grazing system found here. Grazing of this common range in a single area in Arkansas has provided fairly significant returns in pounds of beef per cooperating farmer. Such returns probably would not have been possible otherwise. Disadvantages to the owners of the nonfarm forest land in this area, during the period for which information is available, have not been particularly serious. Probably the most important problem is the poor animal husbandry practice that prevails.

The common range system, judging from a single instance, is one that calls for increased community interest and effort for improvement in practices. Many of the most important measures for improvement in the utilization of land for grazing and forestry are such that they can be best effected by residents and land owners operating as a group. The fact that this common grazing area has been in operation for 27 years indicates the possibility of successful group effort in making further advancement. The residents and land owners could now take such additional steps as: acting together in preventing fires, prohibiting theft of livestock and timber, dipping and vaccinating livestock, purchasing pure bred bulls, and

in regulating breeding dates, and kinds and numbers of livestock on the range.

Thus far there has been no systematic method for putting any of these steps into effect. One large operator has placed a pure bred bull on the range; other operators could contribute toward the purchase of bulls in accordance with the numbers of cattle they graze on the range. If the resident operators agreed to cooperate in preventing fires, the land owners would probably all pay the State the usual two cents per acre annually to secure the benefit of the State-Federal fire control program.

To date informal agreements as to the numbers of cattle each operator may graze have worked satisfactorily. Those who contributed most in money and labor toward establishing the common range have been permitted to run the largest numbers of livestock. If a really constructive program for the joint utilization of this land for forestry and grazing is to be practiced, the numbers of livestock that can be grazed will sometime be materially decreased and, no doubt, the numbers permitted by each operator must then be apportioned systematically. Evidently when this common range area was started in 1920 the forests were cutover and producing far below their normal capacity. The present rate of growth of saw timber is probably not more than 192 board feet per acre. Under proper management the rate of growth can reasonably be expected to double this amount. As the forests reach their maximum annual growth they will be stocked with trees to such an extent that the restricted sunlight will result in a decreasing amount of grass and other forage. Much educational work in the interest of both improved livestock and forestry programs will be necessary before the farmers and land owners will take additional steps as they are needed.

The system of free range with modifications, such as the one discussed, is likely to be with us for many years. It has favorable possibilities in localities where there is a high proportion of nonfarm forest land. Proponents of both improved forestry and grazing need to consider the practice as it appears to the local residents and land owners. Probably in many localities a system such as this one which permits joint utilization of the nonfarm forest land will make possible a higher return from the land than if either use is followed to the exclusion of the other.

DEAN W. BLACKBURN

Bureau of Agricultural Economics

EMPLOYMENT CATEGORIES IN AMERICAN AGRICULTURE

IT HAS been common for those concerned with American agriculture to confuse the *farm population* with the *farmer* population. Thus the Department of Agriculture is frequently exhorted to care for the welfare of the farmers at the expense of the laboring peoples because it is concerned with agriculture. At one point in American history the equation of farmer and agricultural population was sufficiently close to warrant its use. But it no longer approaches verity, and it is necessary to prevent such confusion if rural policy is to be formulated in terms of the welfare of all the agricultural population. A very large proportion of those engaged in agricultural production are not farmers in any sense of the word, though they are vital to our agricultural industry.

Most frequently the farm population is classified according to tenure status, with the laborers, if they are included at all, generally lumped into one category. Tenure is a poor criterion of status, however. It implies poverty, yet a new form of tenancy has arisen and in California at least is very important, in which such an imputation is far from justified. There are many tenants who choose not to invest their capital in land, but rather in production tools for high-cost operations. Another frequent classification, farm size, is significant but only if corrected for intensity of use. This is hard to accomplish with accuracy over a wide area, and it always leaves the laboring group out of consideration.

Because discussions of farm population usually leave the laboring group out of consideration and therefore perpetrate a grave error, and because the usual classificatory devices do not meet the important requirements of a significant classification, an effort is here made to present a taxonomy of the agricultural working force. This is, of course, not the first effort of the kind. A need for re-classification has long been felt, and recently a group of agricultural economists presented a classification of farms in the United States, proposing that it be made the basis for census enumeration.¹ But this classification concerned itself with farms, not farm people. The results of this work have been utilized here, and are generally recognized as of great importance, but the focus of attention naturally limits the usefulness.

¹ M. R. Benedict, H. R. Tolley, F. F. Elliott and Conrad Taeuber, "Need for a New Classification of Farms," this JOURNAL, 1944.

The taxonomy of the farm population—or rather of the working force in agriculture—proposed here is based upon the significant relationship of the individual to the other factors of production; more specifically to his employment relationship. The basic distinction here is whether he is an employer of others, a self-employed person, or an employee of others. Each group has, as will be shown below, significant subdivisions. The procedure here will be first to determine the approximate size of the various categories in American agriculture from census data and other general sources, and second, to demonstrate the practical importance of the classification.

It should be noted at the outset that this classification is not proposed as the only one of importance; but it is argued that it is one of extreme importance, and that the development of farm population data should take it into consideration at all times. Nor is it argued that each broad category is perfectly homogeneous; but it is asserted that for important policy matters the members of each of the groups indicated are affected in more or less uniform ways. Finally, it should be noted that the estimates of size are first approximations. More refined analysis of existing data could undoubtedly improve the accuracy of the calculations, and sample surveys would further correct the figures. Yet it is believed that the size categories are generally correct, and may be used until more refined data are available. This is true because the calculations have been borrowed from other students of the subject who have treated one or another aspect of farm population statistics, and the dependence of the present author upon these statisticians is specifically recognized here.

Census Classifications

It is necessary first to examine what the census presents us in the realm of employment categories. The census classifies the farm population in several ways according to different sources of data. Classified by occupation, in 1940, there were 8.2 million persons engaged in farm work; 5.1 million as farmers and managers, 1.9 as farm laborers and foremen, and 1.2 as unpaid family workers. Classified by industry, there were 8.7 million persons in agriculture. The largest estimate of workers in the industry comes from the Census of Agriculture, in which in September of 1939 there were 11.3 million persons reported working on farms, of which 8.2 were

operators or members of their families, and the remaining 3.1 were hired workers. Without further analysis, this suggests that from 23 percent to 28 percent of all persons engaged in the industry had the status of laborer.

These data are generally recognized to be inadequate in their enumeration of all persons engaged in agriculture. The fact that about 37 per cent more persons were working in the industry in September than were reporting that occupation the following April is itself testimony to this inadequacy. Research done in the field of rural population shows how much greater the total working force in agriculture exceeds even the September figures. The reasons for the discrepancy are readily understood. First, farm employment is highly seasonal, so that a farm employee does other work at other times, and much of the working force is made up of persons who are in the labor force only during local peak seasons, and therefore at other seasons of the year correctly call themselves housewives, students, etc. Second, farm labor is one of the least honorific jobs available and therefore many persons whose work records enable them to choose which occupation category they are to be enumerated in—and the seasonality of employment makes this number large—will choose to be classed under other occupations.

Estimates of the 1940 Working Force in Agriculture

The 1940 working force in agriculture numbered at least 14.5 million persons. A sample survey made in January, 1944, sought to determine all persons in the agricultural working force at any time during the previous year.² On the basis of this study it was estimated that the total working force in agriculture in 1943 was 14.5 million. Between 1939 and 1943 the average volume of farm employment declined by about 5 percent or half a million persons, according to data obtained from the crop reporting service.³ According to the Census reports the decline was 1.1 million workers.⁴ The former source indicates that the peak month of employment was 100,000 workers less in 1943 than in 1940; the latter that peak em-

² Louis J. Ducoff and Margaret Jarman Hagood, *The Farm Working Force of 1943*, Bureau of Agricultural Economics: USDA, Washington, D. C., 1944 (processed).

³ *Farm Labor*, December 14, 1943 (Mimeographed report issued monthly by the Bureau of Agricultural Economics: USDA).

⁴ United States Bureau of the Census, *Monthly Report of the Labor Force*, Special Surveys MRLF No. 34, April 5, 1945.

ployment declined by 1,100,000 workers. All these figures suggest that in actual fact the farm working force was greater in 1940 than it was in the year covered by the Ducoff-Hagood study. However, it is not possible to determine total working force from peak employment. The many unskilled persons working in agriculture in 1943 as a war measure may be assumed to offset a large part if not all the out-movement from agriculture. It will therefore be assumed that the total working force in 1940 was the same as shown by the Ducoff-Hagood study. The actual working force was 3.2 million workers, or about 27% greater than the largest number presented by the Census of 1940.

Classification of the 1940 Working Force in Agriculture

It is now possible to turn to a classification of this labor force. The focus of interest is upon employment status: How many are farm operators and of these how many are predominantly, occasionally, or never the employers of labor, and how many who are classed as farmers are actually not producers in the commercial sense; how many are farm laborers, and the proportions of these who have security in farm employment, no security, or only seasonally in the labor market at all.

Farm Operators.—The census of Agriculture lists 6.1 million farms and assumes one farm operator for every farm, saying that “the number of farm operators, for all practical purposes, is identical with the number of farms and these items are used interchangeably.”⁵ To be sure, the Census of population reports only 5.1 million employed as farmers in March, 1940, while in 1939, when the labor force was at its peak season, only 4.9 million operators reported working two or more days on their own farms. Since the definition of agricultural working force used here means the inclusion of all persons engaged in farm work at any time during the year, the 6.1 million figure must be accepted as the total number of farm operators. These should be divided into several categories:

Those farm operators whose operations depend wholly on wage labor

Those who employ one or more persons regularly, or who employ the equivalent of one man-year of labor each year

Those who hire only supplemental labor, or who hire less than one man-year of labor each year

⁵ Census of Agriculture, 1940, Vol. III, *General Report by Subjects*, p. 135.

Commercial operators who hire no labor

Non-commercial operators

Sharecroppers (who generally have the prerogatives of laborers).

The Census of Agriculture showed 2.3 million farms hiring some wage labor. Of these employer-farmers, an estimated 1.3 million hire only supplemental workers while 1 million hire at least one regular laborer, with or without additional seasonal help. The latter group may be considered one of predominantly employers—that is, those who hire as much, or more, work done as they do themselves. Among this group it has been estimated that about .2 million operators depend entirely upon hired labor to do the manual work involved in their production.

The remaining operators are not employers. Many of them do not produce an appreciable amount of the total commodity production and should not be considered commercial operators. A study made of farm operators by the group of agricultural economists cited above, classifies between 600,000 and 650,000 farms as part-time, 550,000 and 600,000 as residential, and 950,000 to 1,225,000 as subsistence.⁶ Taking midpoints in those classes we find that the authors would include 2.2 million farmers in the noncommercial category. There are an estimated .6 million sharecroppers. This leaves a residual group of 1.0 million non-employer commercial farmers.

These calculations may be summarized as follows: The 6.1 million operators include:

1.0 million who depend largely upon hired labor, of which perhaps a fifth operate entirely with hired labor

1.3 million who hire supplemental labor

1.0 million who hire no labor but produce in commercial quantities

2.2 million who are non-commercial farmers, and

.6 million sharecroppers.

There is the possibility of some duplication between the labor-hiring groups on one hand and the non-commercial operators on the other, for some portion of the latter do hire work done. According to Ducoff⁷ 14 percent of all hired labor is reported on farms pro-

⁶ Benedict, Tolley, Elliott and Taeuber, *op. cit.*

⁷ Louis J. Ducoff, *Wages of Agricultural Labor in the United States*. Technical Bulletin No. 895, U. S. Department of Agriculture, Washington, D. C., 1945. Table 3, p. 10.

ducing less than \$600 value of commodities and who are, therefore classed as non-commercial operators. The census also indicates that 90,000 sharecroppers reported hired labor at some time during the preceding year.⁸ If an adjustment were made to exclude those employers who produce less than \$600 worth of products from the laboring group, the proportion of employing commercial farmers would be decreased. Since the non-employing commercial farmers form the residual category in these calculations, this group would thereby be increased. This adjustment has not been made.

Unpaid Family Workers.—Unpaid family workers have a peculiar position with respect to the other production factors. The nature of family relationships in American society are such that their social position and economic interests are one with the operator. Essentially, their interests are like the interest of any other non-breadwinner of the family, and depend upon the status of the family head. The proportions coming from the various categories of farmers cannot be ascertained, and it would be of questionable validity to apportion them if it could be, since other family members are not so apportioned. It might be mentioned parenthetically, that neither the economist nor the sociologist has given sufficient attention to the position of the unpaid family worker in the rural economy.

The maximum labor of this category reported in the Census was the 8.1 million who were working in September of 1939. This figure includes the farm operators. If we subtract the 4.9 million operators (one operator for each farm reporting family labor) we get 3.2 million unpaid family workers as of September, 1939. Since this is the force of unpaid family workers in an enumeration which results in 11.3 million total labor force, it is necessary to recognize the need for increasing the number of unpaid family workers. That is, some portion of the difference between the 11.3 million workers reported in 1939 and the 14.5 million workers which were employed in 1940 must be underenumeration of the family workers in the total labor force. It is assumed here that the underenumeration of unpaid family workers is proportional to the total underenumeration of non-operators employed in agriculture. In the 1939 count, the total non-operators in the labor force was 6.4 million (11.3 million reported in force minus 4.9 million reporting operator status at that

⁸ United States Census of Agriculture, 1940, Vol. III, *General Report*, Table 3, p. 444.

time). Under the assumption of 14.5 million, there were 8.4 million non-operators (14.5 million in working force minus 6.1 million farm operators). The reported family labor force must, therefore, be increased by $8.4 \div 6.4$ or 1.3, which results in a family labor force of 4.2 million persons.⁹

Hired Laborers.—If the assumption of 14.5 million persons in the farm working force is correct, and we have 6.1 million operators and 4.2 million family workers, there remains a hired labor force of 4.2 million.¹⁰ This force is not all in the labor market during all seasons of the year and under all circumstances, but it constitutes that group of persons upon whom the farmers draw for the production of agricultural commodities. That it is a significant portion of the producing force—from the production standpoint—is indicated by the fact that it constitutes 50 to 60 percent of the labor force on the 650,000 farms which produce over half the commodities entering into commercial channels.¹¹

The Census of Agriculture indicates .7 million laborers hired by the month both in September, 1939, and March, 1940. These constitute the "hired hands" in the industry. Another half million workers may be estimated as getting as much as 8 months employment in agriculture, and thereby have reasonably full agricultural employment. There remain 3.0 million workers who are employed for an inadequate season.

It must be pointed out here that this is a residual category, and contains therefore the major portion of any error resulting from any fallacy in preceding assumptions and calculations. It is, however, also the residual employment category in an economic as well as in the statistical sense. It is the category which most readily expands and contracts in relation to outside opportunity.

⁹ Perhaps it should be pointed out that the use of 6.1 million farm operators has the effect of making a similar adjustment for that category. The 1939 figure of operators in the labor force (number of farms reporting use of family labor) is 4.9 million. The operators in the total agricultural working force are, therefore, about 25% greater than the number reported working in 1939.

¹⁰ This figure is close to the estimate made by Ducoff (*op. cit.*) who says "No data are available on the number of different persons working as hired laborers on farms during the course of a year. However, related information from a recent survey of farm labor utilization [the Ducoff-Hagood study referred to earlier] suggests that an annual average hired farm employment of 2.5 million may have involved as many as 4 million persons who worked for wages on farms during at least some part of the year." (Italics supplied.)

¹¹ Harry Schwartz, *Seasonal Farm Labor in the United States*, Columbia University Studies in the History of American Agriculture, No. 11, Columbia University Press, 1945, p. 3.

This category should, in turn, be divided into three separate groups: those who are wholly or predominantly dependent upon agriculture for their non-relief income, those who are predominantly dependent upon non-agricultural employment for their income, and those who seasonally withdraw from the labor market entirely. This last includes school children, housewives, elderly persons, and others who have means of support other than employment.

TABLE 1. EMPLOYMENT STATUS OF THE WORKING
FORCE IN AGRICULTURE

Employment Category	Millions of Persons
A. Farm Operators	
1. Operators who are predominantly employers	1.0
2. Operators who are only secondarily employers	1.3
3. Non-employing commercial operators (Hiring no labor but producing \$600 or more annual value of products in 1939.)	1.0
4. Non-commercial operators (part-time, residential and subsistence).	2.2
5. Sharecroppers	.6
Total farm operators	6.1
B. Family Workers	
6. Family workers	4.2
Total family workers	4.2
C. Hired labor	
7. Hired hands (workers employed by the month)	.7
8. Other regularly employed workers (receiving eight or more months of employment, but not hired by month)	.5
9. Seasonally hired farm labor (constantly in the labor market but getting only seasonal farm employment)	1.5
10. Hired labor only seasonally in the labor market	1.5
Total hired labor	4.2
Total farm working force	14.5

Data are not available for making even an estimate of the proportion of workers in these three categories, though it is possible to arrive at a rough estimate of those who remove themselves from the labor force entirely. The study by Ducoff and Hagood showed that there were 3.5 million persons who had been in the farm working force during the preceding year, but who neither were working nor seeking work in January, 1944. Such workers must have come predominantly from two groups, the unpaid family workers and the seasonally employed wage laborers. These in combination amount to about 7.2 million workers. About half this group, then, are seasonally out of the labor force. Thus it seems probable that about

half the total workers in the seasonal labor category, or 1.5 million seasonally hired workers, do not seek employment except during periods of peak farm needs. The remaining 1.5 million workers include those who are employed less than eight months in agriculture and who are chiefly dependent upon farm work plus those who work less than eight months in agriculture but are chiefly dependent upon non-farm work. It should be recognized that more persons would withdraw from the labor market in relatively prosperous 1943 than would have done so in the less prosperous year of 1940.

Summary.—Table 1 summarizes these calculations. They are admittedly only first approximations, which would profit greatly from more sophisticated statistical analysis and from sample surveys. They offer, however, an approximation for categories that must be viewed as of the most significant nature for any discussion of agricultural problems or policy.

Usefulness of Classification for Matters of Rural Policy

The value of any classification rests upon its usefulness. The usefulness of the present classification is two-fold. First, it recognizes the people engaged in agricultural pursuits, rather than the farm units. And in recognizing people, it does not limit itself to one segment of the agricultural working force, but takes in the whole. Second, the classification divides the force into groups the members of which have fundamental economic characteristics in common. They are groups which each stand in relation to production in a particular way, so that the benefits and costs of public policy will fall upon the members of each group more or less alike, while such policies will affect different groups differently.

Consider, for example, the incidence of benefit that results from labor policy in agriculture. American policy for farm labor has been a negative one. That is, farm workers have been excluded from the benefits of virtually all social legislation developed since 1933. Exclusion of farm labor from minimum wage laws is obviously to the advantage of the employer. It is particularly to the advantage of the non-working employer. It is clearly to the advantage of the farmer who hires more work done on his enterprise than he himself performs. On the other hand, the exclusion of labor from coverage by minimum wage laws has been clearly to the detriment of the wage worker in agriculture. The position of the non-employing commercial farmer and of the farmer who employs incidental help

amounting to less than his own work is equivocal. It is generally argued by economists that such a farmer is ultimately paid for his labors in terms of the value of his labor in competition with the existing labor market. If this is the case, then the interests of these two categories of the farm population lie with labor. But the small farm operator generally identifies himself as a business man, and therefore with employer interests. This may be the case even though his real economic interests lie with labor. It is therefore better not to allocate either of these categories to either group, but to remember that their interest in matters pertaining to labor are ambivalent. The non-commercial operators, insofar as their farms are their only economic activity, are unaffected by the policy. Sharecroppers, though not directly affected, would stand to benefit by minimum wage legislation for farm workers. The unpaid family workers would not be directly affected, and their general attitudes and advantages would lie with the position of the chief breadwinner or farm family head in the situation. They, like all the secondary members of the household, can be left out of consideration. All the laborers, on the other hand would stand to benefit from a policy designed to support farm wages, though the position of the group of workers only seasonally in the market is anomalous. They are frequently members of either farmers' or laborers' families, and therefore to a very great extent will benefit or be deprived according to the occupation of the major breadwinner, or according to their more important occupation or source of income. Like the unpaid family worker they may be left out of consideration here.

This discussion may be summarized by the following table.

TABLE 2. ECONOMIC ALIGNMENT OF EMPLOYMENT CATEGORIES
IN AGRICULTURE

Economic Interest Groups	Millions of Persons
Groups with employer interests	1.0
Groups with labor interest	8.5
Groups with ambivalent interest	2.3
Groups without direct interest	7.7
Total	14.5

The first category is made up of group 1 in table 1. The second category consists of groups 5, 7, 8 and 9, and 10 percent of group 4. The third category consists of groups 2 and 3 of table 1, and the

fourth of the remainder. The inclusion of .2 million of the non-commercial farmers (approximately 10 percent) in the labor category is an estimate of laborers in this category. The census indicates that nearly .8 million farm operators worked off their farms 150 days or more (half the working year) and that about 30 percent of the farm operators working off their farms worked on other farms. This ratio gives, in round figures, .2 million farm operators, presumably from the non-commercial category, who actually perform more farm wage labor than they perform work on their own farms.

Table 2 shows clearly that only a small portion (about 7 percent) of all those gainfully employed in agriculture stand to benefit from existing agricultural labor policy, whereas far more (about 25 percent) find it to their detriment. The ratio of direct employees to predominantly employers is three and a half to one.

This reclassification of the data has been made to demonstrate the manner in which the classification presented in table 1 can be used. Other similar arrangements of the statistics on farm population can be made, and the analysis of the incidence of benefits and costs for any farm policy or program should be made before it is adopted. Even if such use is not made, this classification should go far toward dispelling the frequent notion that the Department of Agriculture, because it deals with farm production is solely—or even predominantly—concerned with the welfare of farm operators.

WALTER R. GOLDSCHMIDT

University of California, Los Angeles

1950 WORLD CENSUS OF AGRICULTURE

The Food and Agriculture Organization of the United Nations has started the preparation of the 1950 World Census of Agriculture by submitting a preliminary program to the governments of the world. The memorandum submitted contains a list of items proposed as a minimum schedule. However, no uniform questionnaire is to be used. Governments are asked to review the suggestions and to discuss them with FAO. The census program will be resubmitted after this initial consultation. The material just sent out was prepared by experts from seven countries in cooperation with members of the FAO staff under the direction of Howard R. Tolley who heads the FAO Division of Economics and Statistics. The information to be obtained includes data on acreage and production of commodities of worldwide importance and on tenure and major

land classification. The material is limited to basic data of wide interest; it excludes some important items the collection of which, at the time of the 1950 Census, does not appear feasible. The minimum schedule includes only the *area* harvested of each crop to be enumerated, but does not include the *amounts* produced. Some countries will wish to obtain production figures through census enumeration, while others will prefer to estimate crop production through other means. However, it was urged that crop production estimates be prepared and transmitted to FAO as part of the census program. Countries should collect data soon after their harvest seasons, before general planting operations have started for a new crop season. In the northern hemisphere the census is to cover the calendar year 1949, in the southern hemisphere the year beginning July 1, 1949. The minimum size of holding to be included in the census should be made as low as possible in view of the importance of small holdings in the production of certain high-value foods. FAO recommended that censuses of fisheries and forestry be taken simultaneously with the Census of Agriculture. The desirability of coordinating the agricultural census with a census of population was stressed. Close cooperation with the Inter-American Statistical Institute that is developing plans for a 1950 Census of the Americas has been established.

It should be kept in mind that FAO is not an action agency and will not take the Census itself. Rather, it is serving as a coordinating and advisory organization among the governments that will actually engage in taking the Census of Agriculture. FAO does plan to issue world tables and regional tables summarizing information received from various countries; therefore, it is interested in achieving uniformity in statistical methods so that usable regional and world totals can be obtained. Governments were invited to suggest how FAO may assist them in their work for the census through such methods as recruitment and training of personnel, exchanging of schedules, developing cost estimates, and developing sampling surveys, where complete enumerations are not feasible. At this early stage, the stress is on complete enumeration. Sampling surveys are considered as a less desirable substitute for complete enumeration. As the time for the Census approaches, limitations in available funds and personnel will become obvious. This writer hopes that, wherever such limitations arise, FAO and the governments concerned will be flexible enough in their preparations to go

ahead with first class sampling surveys rather than insisting on complete enumeration with personnel of dubious competence or—worst of all—abandoning the taking of the census in the country or countries concerned. Modern sampling techniques yield results that may well be considered superior to results obtained from complete enumerations with unqualified personnel.

The undertaking is not unprecedented. The International Institute of Agriculture in Rome published its first International Yearbook of Agricultural Statistics for the year 1910 after authorization by the General Assembly of the Institute in 1911. The Yearbook appeared in annual or biennial editions covering every year at least until 1939. Official publications were utilized in the Yearbooks as far as possible; where official information was not available estimates derived from trustworthy private sources were adopted. In 1930, the Institute organized the first international agricultural census. A second Census of Agriculture was conducted in 1940. The publication of the results of that census as well as publication of the 1945–46 International Yearbook of Agricultural Statistics in the FAO Rome Office, the headquarters of the former International Institute of Agriculture, are being planned. In carrying out the 1950 census full use will be made of the experience gained in the conduct of the earlier censuses. Consideration is being given to utilizing the Rome office for the 1950 census on a regional or other basis.

This writer hopes that the government of the USSR—so far not a member of FAO—will cooperate with the World Census of Agriculture, because without the participation of that large country the census would fall short of its aim of being a world census. FAO considers it essential that every effort should be made to give agricultural holders assurance that their census returns will be kept confidential and will not be used for tax or regulatory purposes. While such an assurance would undoubtedly help the Census greatly and while it would be in the best Anglo-Saxon tradition, conflicts may arise in countries whose government is founded on less libertarian principles than our own.

H. G. HIRSCH

University of Minnesota

CROP PRODUCTION IN THE SEMI-ARID REGIONS AN INSURABLE RISK

AS A result of the extreme variations in crop yields within the semi-arid regions of the northern great plains, insurance to minimize losses from crop production is urgently needed. Farm practices based on annual climatic conditions might result in more favorable returns for the work expended. The greatest losses from crop failure occur during exceptionally dry years and in case these years can be determined at seeding time the farmer will be able to adjust his farming program so as to avoid much of the losses that would be incurred otherwise.

A recent study of precipitation and crop yields for central South Dakota reveals significant relationships that might be applied to a crop insurance program to minimize risks and so minimize the premium costs of the insurance to the producer. The study applies particularly to the semi-arid regions within which seasonal precipitation is frequently not great enough to produce profitable yields of grains. Within this area preseasonal precipitation is essential to assure favorable yields. There is no intention to disregard or minimize the benefits of seasonal precipitation. The purpose here is to evaluate preseasonal precipitation and to show its contribution or relationship to crop production.

The preseasonal precipitation period as used in the study was from August 1 of the previous year to March 31. Due to local storms, precipitation from a single station may not represent conditions for an entire county. For use in the study, data from three neighboring stations, where soil and general climatic conditions were similar, were averaged to secure a figure that would be representative of an area. The yield data used were the average of the reported yields of wheat for the counties where the weather stations selected were located.

The study covered data for a period of 25 years from 1919 to 1943 inclusive. Data from eight counties were grouped into three areas. In Table 1 comparative data for the 25 years of the study for all three areas were used giving 75 pairs of data for analysis. Yields are shown resulting from progressive intervals in the amount of preseasonal precipitation. As precipitation increased there was a corresponding increase in the average yield reported.

The mean, or average, yield of all observations studied was 8.5

TABLE 1. REPORTED YIELDS OF SPRING WHEAT LISTED BY PROGRESSIVE INTERVALS IN THE AMOUNT OF PRESEASONAL PRECIPITATION IN INCHES FOR THREE AREAS IN CENTRAL SOUTH DAKOTA FOR THE YEARS 1919-1943 INCLUSIVE

Preseasonal Precipitation in Inches						
	2.0"- 4.99"	5.0"-7.99"		8.0"-10.99"		11.0" & over
Yield in bushels	.0	.1	7.8	4.0	11.0	14.9
	2.8	.1	9.9	4.6	8.6	9.8
		3.1	8.8	4.0	9.0	14.4
		.2	9.4	3.7	14.6	12.0
		4.6	7.2	2.4	9.0	14.9
		3.1	6.4	4.6	9.7	11.3
		.1	11.9	6.2	13.8	15.2
		2.4	7.7	.6	13.2	16.6
		4.8	9.5	5.8	10.8	12.7
		2.5	11.3		7.3	14.3
		.5	10.5		11.0	13.7
		3.8	8.9		8.9	13.2
		6.1	9.7		12.9	
			15.1		9.3	
			6.5		11.3	
			10.9		11.2	
					17.1	
					11.1	
					9.2	
					14.5	
					7.7	
					12.0	
					7.2	
No. in Interval	2	29		32		12
Total Yield	2.8	182.9		286.3		163.0
Mean Yield	1.4	6.3		8.9		13.6
Percent of Years Yields Were Below 75 Year Mean of 8.5 Bu.	100	62		38		0
Total Observations 75, Total Yield 635.0 bu. Average Yield 8.5 bu.						

bushels. The insured yield would be 6.4 bushels at 75% of the average yield. There were 24 of the 75 observations studied when yields were below 6.4 bushels. It would have required 83.5 bushels these 24 years to bring the reported yield to the insured yield of 6.4 bushels. This would have required an annual premium of 1.1 bushels to cover the losses for the 24 cases when yield was below the insured yield. The average of the yearly wheat prices received by South Dakota farmers for the 25 years of the study was \$1.00 per

bushel as shown by prices published by the South Dakota crop reporting service. For purposes of application in the following illustration an annual insurance premium of one bushel per acre is assumed.

ESTIMATED COSTS OF WHEAT PRODUCTION IN CENTRAL SOUTH DAKOTA

Rent on land	\$ 2.00
Cost of seed	1.50
Labor and expense preparing ground and seeding	2.75
Harvesting and threshing	2.75
Insurance premium—1 bu. of wheat at \$1.00 per bu.	1.00
Total Cost	\$10.00
Insurance protection—at 6.4 bu. at \$1.00 per bu.	6.40
Cost above insurance coverage	\$3.60

In 44 of the 75 observations preseasonal precipitation was above 8 inches. In nine of these 44 cases yields were below the insured yield of 6.4 bushels. Total insurance benefits of 21.7 bushels would have been required these nine years to bring the reported yields to the insured yield of 6.4 bushels. In 31 of the 75 observations pre-seasonal precipitation was below 8 inches. In 15 of these 31 cases, or practically half, yields were below the insured yield of 6.4 bushels. The total per acre insurance benefits required to bring the reported yields up to the insured yield of 6.4 bushels for the 15 years would be 61.8 bushels. An annual premium of 2.0 bushels per acre would be required during these low precipitation years to cover the risks. The low preseasonal precipitation years are, therefore, the critical years and the ones when greatest risks and losses must be assumed.

It would have been to the interest of the farmers to materially restrict the seeding of wheat during the years of deficient pre-seasonal precipitation. If we assume that above costs of production are correct, in all years with wheat yields below 10.0 bushels the farmer stands to suffer some loss. There were only five of the 31 times when preseasonal precipitation was below 8 inches that yields were above 10.0 bushels. Even with insurance in only one year in six of the low preseasonal precipitation years can the farmer, within this district, hope to break even with production costs.

If a plan could be worked out to restrict or entirely eliminate the seeding of wheat during these low preseasonal precipitation years the cost of the insurance would be greatly reduced as well as the

losses that must still be borne by the farmer in spite of the benefits from his insurance protection.

In case wheat is seeded during the low preseasonal precipitation years the insurance agency would have to make benefit payments in about half of these years. Suppose the farmer seeded his usual acreage of wheat during all years when preseasonal precipitation was above 8 inches. In the 44 such cases shown in the table he would have paid insurance premiums of 1.0 bushel per acre per year. There would, then, have been 44 bushels of wheat paid in as premiums. Insurance benefits for the nine years when yields were below the insured yield of 6.4 bushels would have required 21.7 bushels leaving 22.3 bushels in the reserve. In case no wheat were seeded during the low preseasonal precipitation years annual benefit payments could have been made on the basis of .72 bushel per acre on the average number of acres the farmer had seeded during the high precipitation years. The farmer would then have been able to avoid this seeding and harvesting expense and devote his time to other work on the farm.

By avoiding, in the low preseasonal precipitation years, the seeding and harvesting of crops that do not pay production costs and adapting the farm program so that the available labor could be employed at more productive work, farming in central South Dakota might well be relieved of much of the risk involved in present practices and greatly simplify the application of a crop insurance program.

Analysis of climatic data in a similar manner for each area where insurance was written might reveal relationships that would make it possible to adapt an insurance program to local conditions and might well place crop insurance on a more satisfactory basis.

RAY F. PENGRA

South Dakota State College

REVIEWS

Studies in Income and Wealth, Volume Eight. National Bureau of Economic Research, New York: 1946. Pp. xiv, 297, \$3.00.

This volume includes eleven papers prepared for the 1944 annual meeting of the Conference on Research in Income and Wealth conducted under the auspices of the National Bureau of Economic Research. Most of the papers deal largely with problems of estimating national income in various countries. The difficulties of making comparisons between countries and the kinds of reconciliations needed for such comparisons are treated in some detail. In addition, there are papers dealing with the measurement of national consumption, certain welfare considerations in international policy, the relationship between the degree of industrialization and per capita income, and the estimation of income distribution.

These papers are likely to be of limited interest to the bulk of research workers in farm management or marketing, since these workers are concerned largely with individual economic units rather than with aggregates. Researchers engaged in making estimates of agricultural production and income may benefit from the contributions of Ta Chung Liu and Shan-Kwei Fong on the "Construction of National Income Tables and International Comparisons of National Incomes," and Phyllis Dean on "Measuring National Income in Colonial Territories." The problems of measuring national income in economies that have relatively little industry and where much of production is not sold are similar to those encountered in measuring agricultural income in parts of the United States.

Of interest to those dealing with agricultural policy is the paper by Louis H. Bean titled "International Industrialization and Per Capita Income." This paper discusses the relationship between the degree of industrialization and the national income in the economy. It points out that the large percentage of the population engaged in agriculture in such areas as China, India, Latin America and Africa, indicates the degree to which national income in these areas could be expanded by moving resources out of agriculture and into other industries and services. It is likely that in countries where the percentage of the population engaged in agriculture is high the "best" technology is not being used, or that industrial development has lagged. Although this thesis is not supported by adequate statistical

analysis, a number of bits of evidence are collected to lend reasonableness to it.

Those concerned with certain welfare aspects of international policy may glean some ideas from the paper "National Income as a Determinant of International Policy" presented by Arthur Smithies. Levying contributions for the support of United Nations and its various agencies involves some judgments with respect to desirable modifications in the income distribution of the people of the world as a whole. We in the U. S. have recognized certain bases for income redistribution within our national boundaries. For example, the existence of wealth and poverty side by side within the country has not been considered as contributing to a stable political organization. Progressive income taxation and the provision of certain services by government is rather widely accepted as a means for reducing the range of the income distribution.

However, we have not given much thought to transfers of income across national boundaries. Perhaps the advent of the atomic bomb makes the existence of wide variations in average per capita income between countries a more important cause for international political instability. In determining the policies of FAO and other organizations, shifts in the income distribution which are unfavorable to us perhaps should be weighted less heavily than they have been in determining international policy in the past.

O. H. BROWNLEE

Iowa State College

Managing a Farm. Sherman E. Johnson and Associates. New York: D. Van Nostrand Company Inc., 1946. Pp. 365. \$2.95.

This book is a revision of Education Manual 810 "Managing a Farm" issued by the Armed Forces Institute in November, 1944 with additional chapters on "The Right Start for a Part-time Farmer" and "Summarizing and Using Farm Records."

Farm Management books in the past usually have had a strong sectional orientation as a result of the illustrative material used by the authors. This book prepared by members of the staff of the Division of Farm Management and Costs of the Department of Agriculture draws upon the entire United States for illustrative material. It successfully presents the farm management problems in a national setting with sufficient detail to be useful to young men starting farming in any part of the country.

The chapters for the most part are written for young men thinking of starting farming for themselves rather than for students in high school or college. They contain both information and advice on particular farm management problems such as "there are some people who dislike responsibility so much that they do very much better when they are working for others. Such persons should not attempt to become independent farm operators" (p. 65) and much general descriptive information on agriculture as: "Farm wages are highest in the Western States and in parts of the East near industrial centers. They are lowest in the Southeast, and are in between the two extremes in the Corn Belt" (p. 211). The book can be read by the beginning farmer with profit, either for its information on particular farm management problems or for its descriptive and illustrative material on agriculture in the different parts of the United States.

Chapter 10 "Getting the Highest Return From Each Enterprise" is probably the simplest discussion and presentation of the principle of diminishing returns in the literature. If the book were to be expanded the reviewer would suggest additional emphasis on where the beginning farmer can get local information and how he might profitably study the local problems before making financial commitments. For example a form for appraising the worth of a farm is presented on page 109. Few readers of the book will be able to use the form even though they consult local farmers and bankers, however, because of lack of information on the items of income and expenses to fill it out.

Data from Extension farm accounting projects in states in each of the major type-of-farming areas might also have been presented to show something of the variation in incomes each year and the major reasons why some farmers failed to earn as high incomes as others in the community.

Anyone wanting practical information on managing a farm will find this the most generally useful publication of its kind.

WALTER W. WILCOX

University of Wisconsin

Farm Business Management. H. R. Hare, Toronto, Ryerson Press, 1946. Pp. viii, 450. \$3.25.

This book, in the words of the author, is designed to provide "a Canadian text in Farm Business Management for the use of stu-

dents of agriculture. These students may be in schools, colleges, universities or study groups. They may also be amongst the large number of practicing farmers whose interest in a business approach to farming in recent years has suddenly become aroused." It is primarily a text book and each chapter is followed by review questions, laboratory exercises and a well chosen list of references. The laboratory exercises are perhaps better designed for students at the high school level living on their home farms. However, the text is well adapted to college teaching and should also command the attention of a large number of practicing farmers. It should prove especially valuable to those contemplating or starting farming.

The first chapter presents an excellent picture of the characteristics of farming as an occupation with special emphasis on Canadian conditions. This is followed by a chapter "The Nature of the Farm Business in Canada" in which the author defines and delimits the field of farm management. He points out its relation to other fields of agricultural subject matter and to the general field of economics more clearly and helpfully than do most of the farm management texts that have been published in the United States. The third chapter deals with types of farming in Canada. Following are five chapters dealing with farm capital, farm land, farm labor, farm equipment, and farm buildings, fences and farm layout. The next two chapters deal with the selection of crops and livestock. The factor analysis of the farm business is covered in 4 chapters. Then follows a miscellaneous group of six chapters including farm records, marketing and prices, sources of agricultural information, selecting and acquiring a farm, farm budgeting, and the community or social aspects of farming.

In general, the material is systematically and logically arranged. The reviewer would prefer to see the chapters on selecting and acquiring a farm moved up immediately after the one on types of farming. He would also like to see the chapter on farm budgeting precede the factor analysis. This is not a serious objection since the teacher can assign the chapters in any order he prefers. No general type of organization characterizes the farm management texts in use in the United States and no two teachers follow the same sequence of subjects.

The chapter on type of farming includes a good discussion of the factors affecting types of farming but does not tie it in adequately to the types depicted in the provincial maps. A generalized map of

the agricultural regions of Canada would be desirable. Maps showing soil, topography, elevation, and climate would help the student better to understand the distribution of farming types. Most of Canada is of relatively recent agricultural development and it is quite possible that some of this factual material is not available as yet.

The chapter on farm budgeting (Planning the Annual Farm Business Program) would be improved if more emphasis was placed on the "balancing of alternatives" aspect of the subject. Too many texts written in the United States share this lack of one of the most important aspects of budget use. By the comparison of alternate plans for the same farm at different price levels the basic principle involved could be brought out more clearly. The author adheres so closely to one complete budget of a farm as to make it appear that a farm budget is a "once over-all over" affair adapted to one specific use. A use of the short cut techniques in budget analysis now coming into general use would make the whole process much less formidable and bring out the diverse uses to which the budgeting process is adapted.

This book is written specifically for Canadian students and Canadian farms. The illustrative material is drawn very largely from Canadian sources. This limits its use outside of Canada because farm management principles are more easily grasped by the student when illustrated in terms of an agriculture with which he is familiar. In justice to the author the reviewer wishes to note his familiarity with the farm management literature of the United States as indicated by his numerous references to it. While this work cannot be expected to have any general use as a text in this country and obviously was not intended as such, it is a real boon to the teacher of farm management in Canada. Moreover, any teacher of farm management in the United States who does not give it a prominent place in his library is missing a valuable and inspiring aid to his professional development.

GEORGE A. POND

University of Minnesota

Russian-American Trade. A Study of the Soviet-Foreign-trade Monopoly, Mikhail V. Condoide. Columbus, Ohio: The Bureau of Business Research, College of Commerce and Business Administration, Ohio State University, 1946. Pp. xiii, 160. \$2.50.

Uninformed comment on prospects for United States trade with Russia varies all the way from highly optimistic forecasts to a disbelief in the feasibility of dealing with the Soviet Union on any terms likely to be attractive to American businessmen. The optimistic views are based largely on the enormous unsatisfied demand known to exist in Russia, plus possibly some consideration of presumably large but unspecified stocks of gold assumed to be available to the Soviet Government for purchases abroad. The author undertakes to provide a better factual basis for such prognostications, both by giving data on what trade there has been in the past between the United States and Russia, and by speculating on what Soviet trade policy is likely to be.

Chapter I deals with Russian foreign trade before 1914. Chapter II with the Soviet Economic System; and, Chapters III and IV with the general principles on which Soviet foreign trade is based. Chapter V deals with the political and economic relations between the United States and Russia, and Chapter VI with the significance of the trade between the two countries. The book's most important contribution is its factual content, largely in statistical form. The interpretations and explanations are of rather limited scope, and on some points seem less than satisfying to this reviewer. It must be recognized, however, that even competent students able to draw on documents printed in Russian, as this author is, often disagree sharply on what is occurring in Russia and what its policies are. Its internal conditions, plans, and attitudes are by no means easy to ascertain, and even a limited contribution of factual information is to be welcomed.

Up to now the trade of the United States with Russia has not been of great importance to the United States. Imports from Russia have never exceeded 1.2 percent of total American imports. Exports to Russia, though much greater in value than imports, were never important in comparison with total United States exports. Except during World Wars I and II the exports to Russia did not at any time amount to more than 4.3 percent of our total exports (1931), and usually were well under 2 percent. In 1916 they reached 8.6 percent, and in 1942, the last year for which data are given, they amounted to 17.6 percent. During the past three decades Russia's total foreign trade has in general amounted to less than 2 percent of total world trade. In 1913 it accounted for 3.3 percent of world imports and 3.9 percent of world exports. In other words,

Russia, both under the Czars and under the Soviet government, has been in the main an isolated area, taking relatively little part in the trade between nations.

While Russia's trade with the United States has been of little significance to the United States it has bulked much larger in terms of Russian foreign trade. Imports from the United States between 1924 and 1938 ranged between 4.5 percent and 28.5 percent of all Russian imports. Russian exports to the United States on the other hand never exceeded 9.6 percent of her total exports.

The chapter on the Soviet economic system, while not very specifically related to foreign trade, provides a brief summary of the mechanism through which the planning operations of the government are carried on, and some generalizations as to the objectives. For the first "Five-year Plan" (1928-1932) the major objective was the rapid industrialization of the U.S.S.R. "The production of consumer goods was minimized in favor of the largest possible expansion of factories." The second "Five-year Plan" (1933-1937) "laid stress on mastering the new methods of production, training labor, and the expansion of the production of consumer goods." This was reoriented however, from about 1934 on, so as to place the emphasis on preparations for war, and the U.S.S.R. has been, in the main, on a war basis since that time. The following discussion on the relation of prices and costs to the allocation of resources, is descriptive and no serious attempt is made to weigh the effectiveness of that system as compared to an allocation based on prices in a freer market.

Chapter III describes the official attitude with respect to foreign trade. Foreign trade is completely nationalized, and the policy looks in the main to minimizing rather than maximizing trade with other countries. Having little to export a prime consideration is to conserve gold and foreign exchange. The reader may, however, justifiably question the adequacy of such conclusions as that at the bottom of page 25 where the author says "Thus the monopoly of foreign trade served as a powerful tool for safeguarding the resources of the country." This seems to imply that foreign trade is merely something that drains wealth out of the country. It is reminiscent of the equally illogical reverse view held by many American farm groups, that foreign trade results only in bringing in unwanted goods that depress their markets.

The author concludes that, in general, the U.S.S.R. will deter-

mine what imports are essential and then decide what exports should be used in payment for them. That view, with which this reviewer sees no reason to disagree, does not imply a large volume of trade with Russia during the foreseeable future except for equipment needed in furthering the Soviet program of industrialization. Consumer goods seem not likely to be imported in any significant volume, and even production goods imports will probably be held to bare necessities.

Various other aspects of the internal and external policies of the U.S.S.R. which are touched on by the author cannot be discussed in the brief space of a review. In general, the discriminating reader will be more satisfied with the factual presentation than with some of the conclusions drawn. The author finds more merit in the Russian approach to these problems than will most American economists, and at various points it seems to this reviewer that more perspective and more penetrating analysis are needed. For example, there is little weighing of the merits of the enormously burdensome program of forced saving; little consideration of the possibility that a program of freer trade and more opportunity for private initiative might result in more rapid industrialization; as it probably did at times in Britain and the United States; and almost no comment on the bare statement that the trade arrangements will depend largely on political considerations, a proposition all too reminiscent of the methods of Nazi Germany.

It is stated that "the special conditions under which industrial production takes place in Soviet Russia eliminates a large part of the uncertainty and risk of financial insolvency which retards, severely at times, industrial expansion in other countries. . . . The 'profits' of industry go to the state and by redistributing these 'profits' between different plants, subsidizing some of them, production is stabilized, expanded, and continued without reference to short-run financial solvency or uniformly high profit returns. The state monopoly of foreign trade, moreover, prevents world prices from influencing internal prices since Russian currency is not quoted in foreign markets and cannot be exported or imported." It would seem to this reviewer that it has not been demonstrated that the Soviet system has resulted in faster or more desirable development than, for example, that of the United States in the first half of the nineteenth century which was based heavily on foreign borrowing, trade between nations, and great freedom for the individual.

No doubt the total volume of Russian accomplishment was much greater, but it was the accomplishment of a population of 170 million people in comparison to less than 25 millions in the United States of 1850, and in a period when there was far more technical knowledge available than existed in the world of 1850.

The book is a useful source of information for those interested in Russian-American trade, but most American readers will probably draw from it somewhat different conclusions than many of those implied in the generalizations made by the author. Nevertheless one can well agree with his main conclusion, namely, that large-scale trade between the United States and Russia does not appear to be in prospect in the foreseeable future.

MURRAY R. BENEDICT

University of California
March 3, 1947

Readings in the Theory of Income Distribution. Philadelphia: The Blakiston Company, 1946. Pp. xvi, 718. \$4.25.

This volume is the third in the Blakiston Series of Republished Articles in Economics. Thirty-two articles, selected by a Committee of the American Economic Association under the leadership of William Fellner and Bernard F. Haley, are presented under six major headings: (1) Concept of Income and Distribution; (2) Production Functions and Marginal Productivity; (3) Wages; (4) Interest; (5) Profit; and (6) Rent. To round out the volume, Frank E. Norton, Jr., contributed a 50-page classified bibliography. The introduction by Fellner and Haley must be mentioned, for it is an able discussion of the problems and limitations of distribution theory.

In the words of Howard S. Ellis, Chairman of the Association's General Committee on Republications, "... the Series is oriented towards the tuition of senior and graduate university students; but there is also the hope that professional economists will find it a useful means of keeping abreast of developments in fields other than their own. Thus the Series may help to lessen the intellectual provincialism of specialists, which, it is said, threatens them with having nothing in common—not even an education" (p. v). In terms of these objectives, there can be little question as to the merits of the current volume. The articles are stimulating; they have been selected from a wide assortment of Journals and include samples of

the work of many authorities; they have been presented in a logical and pleasing order. To review such a "composite" product is obviously difficult, and especially so for a reviewer who admits to being a stranger to most of the articles listed in the extensive bibliography. The following remarks, then, represent the reaction of a non-specialist and his opinions of the book's value to other non-specialists among the ranks of agricultural economists.

The introductory articles on national income and personal income distribution discuss concepts that should be familiar. Yet most of us stumble over the differences between "national income" and "gross national product" and forget that many arbitrary elements are inherent in any attempt at statistical measurement. The Pareto, Gini, and Lorenz curves are widely used in discussion of personal income distribution and should be known to agricultural economists even though their usefulness may be questioned. The section on production provides the starting point for the discussions of functional shares, for marginal productivity remains the basis for most of distribution theory. The sections on wages, interest, profit, and rent develop the marginal productivity concept, point out many of its limitations, and suggest alternative approaches. In the end, the reader is left to agree with the editors that the theory of income distribution is at present incomplete.

In addition to its direct value in bringing together articles on distribution, this volume contributes by suggestion and inspiration to many other fields. The theory of the firm may be used as an illustration, since it is of interest to all agricultural economists. Cassels' article (pp. 103-118) provides the basic framework for studies in this field: Stigler (pp. 119-142) points out that short-run marginal cost curves may be relatively flat up to the point where output reaches the "capacity" of the farm or plant. His section of flexibility in plant design bears directly on the problem of combination of enterprises; consider, for example, the advantages and disadvantages of specialization and of diversification on a farm where dairy and poultry are alternatives or for a dairy plant that might manufacture butter and/or cheese. Hart's discussion of uncertainty (pp. 547-557) puts the problem of planning future production in terms of the indefinite probabilities that every farmer and plant manager must face and that have made life difficult for any agricultural economist who, for example, has tackled farm and home planning. Reynolds also discusses this point (pp. 294-313), and

concludes with an interesting section on research procedures. While these references do not constitute a complete discussion of the problem, they are very provocative and should provide the inspiration for many improvements in our researches.

This book has obvious merit in that it combines articles from many sources into a single and convenient volume. This and the quality of the particular selections will make it appeal to students and teachers. It should encourage all of us to read more widely, and so contribute to our knowledge of the problems of distribution. Finally, and by no means least important, it should stimulate thinking and research in many fields, some quite far removed from income distribution as such. I recommend it highly and feel sure that it will repay you in many ways for your attention.

RAYMOND G. BRESSLER, JR.

University of Connecticut

National Income, A Summary of Findings, by Simon Kuznets. New York: National Bureau of Economic Research, 1946. 144 pp. \$1.50.

Professor Kuznets has brought together a considerable number of statistical aggregates and averages. None of the data seem to be new, with the exception of some calculations with respect to the behavior of certain economic series during business cycles. The present effort does not strike me as being particularly useful to the economist who has more than a passing interest in national income data. There is too little in the way of critical evaluation to make the book useful to the serious student. Since most of the data are available elsewhere in a more adequate form, one can better refer to the original sources—to which Professor Kuznets has contributed so much.

I find myself critical of and confused by the treatment of changes during business cycles. Professor Kuznets presents a statistic which measures "differences in rate of movement between expansion and contraction" for a series of reference cycles. The statistic does not in any sense measure the differences during expansion and during contraction for a single series, but presumably gives some insight into differences between series. It does the latter only as the individual cycles conform exactly with the reference cycles. If a particular series consistently lagged behind the reference cycle by one year, the comparisons made seem to be of little value.

Another shortcoming of the measure used—which is obtained by subtracting (algebraically) the average annual change, expressed as a percent of the average value of the series for the cycle, during the expansion from the average annual change during contraction is its failure to indicate lack of conformity of a specific cycle with the reference cycle. Even if the specific series continues to rise during a business cycle contraction, the magnitude and sign of Kuznets' measure can still be negative and very large.

The most interesting of the four chapters comprising the book is the last. In this chapter Professor Kuznets raises some of the more fundamental questions involved in the construction and interpretation of estimates of national income. He points out the basic differences between net and gross national products and some of the reasons why the latter is a useful concept. Some of the more obvious interrelationships between national income and welfare are described.

D. GALE JOHNSON

The University of Chicago

Milk Marketing Under Federal Control. Carl McFarland. Washington: Milk Industry Foundation, 1946. Pp. viii, 205.

This book is privately printed in limited number for distribution only to members of the Milk Industry Foundation. The author was formerly Assistant Attorney General of the United States and as such "had extensive experience with the legal aspects" of the Agricultural Marketing Act.

The body of the text, consisting of sixty-one pages, develop in fairly non-legal language the background, history and substance of the Agricultural Marketing Agreement Act of 1937 as it applies to milk. Further chapters discuss Procedure and Administration as well as marketing agreements and orders under the Act. One hundred thirty pages of appendices follow, including a compilation of the Act of 1937, administrative rules of practice and procedure, a detailed itemization of the legislative history of the Marketing Act relevant to milk and, finally, all references in the Federal Register to orders under the Act classified chronologically by markets. The appendices should be useful as a reference source to students of the problem.

In a brief resume of the Act such as is offered in this book, little

fundamental criticism or analysis can be expected. The chapter on Procedure and Administration offer brief comment or suggestion to handlers regarding (a) the mediation and arbitration sections of the Act which have been little used, (b) the procedure followed in framing agreements and orders, and (c) amendment of existing orders by either administrative or judicial review. The line of argument in these sections is essentially that in the hearings preceding the issuance of an order, handlers appear to be at considerable disadvantage. Hearings "tend to be conducted as 'town meetings'"; exact meanings of terms in the proposed orders are vague and facts are not established with precision. Consequently, a detailed defense is very difficult. Yet, filing of briefs must be based on factual evidence received at the hearing only. Thus, it appears that briefs may not include arguments on issues of law, and further, unless all objections are raised in the brief, it is presumed any exception to errors of fact will be waived and further proceedings precluded. Findings merely repeat the broad generalities or statements of policy contained in the statute and do not come to grips with specific factual or legal issues developed at the hearings or in the exceptions or briefs. Under these circumstances, hearings appear to be rather routine affairs in large part for the record and handlers are left to grope pretty much in the dark.

Administrative review hearings are provided for under section 15A of the Act. This provision should not lull handlers into a feeling "that the first hearing is just an 'opener' since they can have another," for "when they come to the second they may be told that they should have presented the issue in the first. Which hearing counts? If all the evidence and objections must be made in the first, what room is there for the second except in the comparatively rare situation where new facts arise? Apart from the situation where new conditions appear after the original hearing and issuance of an order or amendment, is it designed merely to give the parties and the administrative officers another chance? If an order or amendment is binding and effective after the first hearing and issuance, what is added by the second save delay?"

The safe course for handlers under the circumstances is to make the "promulgation" hearing as complete as possible and then follow through with the "15A" proceedings. After administrative remedies have been exhausted, judicial review is available. In the few cases

that have reached the Supreme Court "the Court has dealt mainly with questions of statutory validity or application rather than the sufficiency of the evidence or administrative procedure."

McFarland suggests that handlers could make their influence felt considerably more than in the past particularly with respect to price, cost and utilization facts of the market established during hearings. Formulas used in the order for price determination should be given more detailed study by handlers. The Act is likely to be subject to strong pressures during the coming period of declining prices—a situation it has not yet faced. During this period handlers may be required to take much more forceful action than they have thus far.

HARLOW W. HALVORSON

University of Minnesota

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NEWS NOTES

The annual conference of the Western Farm Economics Association will be held at Logan, Utah, on June 25, 26, and 27. The host institution will be the Utah State Agricultural College.

In development of its project to produce an International History of Food and Agriculture during World War II, the Food Research Institute, Stanford University, has concluded arrangements with cooperating authors of component volumes as follows: Harold B. Rowe, Brookings Institution (United States); Eric Roll (Combined Food Board); John Cassels and R. H. Allen (International Food Relief); E. M. H. Lloyd (Middle East); R. J. Hammond (United Kingdom); N. Jasny (Soviet Union); H. von der Decken, A. Hanau, Otto Schiller (Germany); Victor Sullam (Italy).

The Inter-American Institute of Agricultural Sciences was officially established at Turrialba, Costa Rica on December 5, 1944. An economic program has been started during the current fiscal year. Julio O. Morales is Chief of the Department of Economics and Rural Welfare.

A departmental council and four standing committees are operating to facilitate the integration of research, teaching, and extension activities in agricultural economics and sociology at Texas A & M College.

In the reorganization of agricultural fields of the College on a subject-matter basis, two departments formerly engaged in teaching, one division of the Texas Agricultural Experiment Station and several Extension specialists were grouped in a single Department of Agricultural Economics and Sociology. It is headed by L. P. Gabbard, who has directed research in farm and ranch economics for the Station since 1923.

J. C. Aakhus has accepted a position with the Agricultural Economics Department of the North Dakota Agricultural College and will be engaged in marketing research for the Agricultural Experiment Station. Mr. Aakhus completed work on his masters degree at Cornell in March, 1947.

E. Lloyd Barber, formerly with UNRRA, has joined the staff of the Division of Agricultural Finance, BAE. He will assist in research in the field of agricultural risk and insurance.

Marvin A. Brooker has returned to the University of Florida and is at present assisting with the teaching program in Agricultural Economics. On July 1, 1947, he will transfer to the Experiment Station as Agricultural Economist and will engage in marketing research.

Roland C. Bevan was appointed Associate Agricultural Economist at the University of Idaho last October. He is a graduate and has his masters' degree from the University of Minnesota and spent about 15 years in Cost Accounting work in Iowa and Minnesota. During the war, he held a number of government emergency positions, and subsequently was employed by General Mills.

Robert E. Beach, who obtained his masters' degree at the University of Denver after his return from the Armed Services, has joined the Division of Marketing and Transportation Research as Agricultural Economist.

H. Wayne Bitting, formerly Economist, Office of Price Administration has transferred to the Division of Marketing and Transportation Research as Agricultural Economist.

Karl Brandt, Economist at the Food Research Institute, Stanford University, is attending an international conference of economists, organized by Professor Hayek of the London School of Economics, at Mont Pelerin, Switzerland, April 1 to 10, 1947.

C. O. Brannen, director of the University of Arkansas Bureau of Research, has been appointed by the War Department to a mission to study the organization and coordination of research and educational centers in the U. S. Occupied Zone of Germany. Dr. Brannen will head the research phase of the mission.

H. K. Chang, Assistant Professor in Rural Sociology and Sociology at Montana State College has resigned in order to organize one of the regional offices in agricultural extension which the Chinese government is establishing this year. Dr. Chang's station will be in northwest China. In addition to his extension activities, he will establish an agricultural demonstration center in cooperation with the Chinese Northwestern College of Agriculture at Sian, China.

Marion Clawson, agricultural economist long in BAE service in the Western States, is now area leader, Bureau of Land Management, U. S. Department of the Interior at Sacramento, California.

Willard W. Cochrane, formerly head of the Income, Demand and Price Section of the Division of Statistical and Historical Research, BAE, has resigned to accept a position in the Economics and Statistics Division of the United Nations Food and Agriculture Organization. Mr. Cochrane will work on international commodity arrangements.

Samuel L. Crockett transferred to the staff of the Division of Agricultural Finance, BAE, from the Division of Land Economics. He will assist in the research work in the field of farm taxation. Mr. Crockett came to Washington from College Station, Texas, where he has been stationed since his return to the Division of Land Economics from military service.

Louis J. Ducoff has been granted a year's leave of absence from the Division of Farm Population and Rural Welfare of the Bureau of Agricultural Economics to accept a Social Science Research Council fellowship for graduate work in labor economics at American University.

Phil S. Eckert, Head of the Department of Agricultural Economics and Rural Sociology, Montana State College, has been granted a six-months' leave of absence by that institution effective July 1 to serve as a consultant

in agricultural credit at the Inter-American Institute of Agricultural Sciences at Turrialba, Costa Rica. Dr. M. M. Kelso will serve as acting head of the department in Dr. Eckert's absence.

Mordecai Ezekiel, long connected with agriculture on the national level, serving as economic advisor to two Secretaries of Agriculture, has left BAE to join the Economics Division staff of the United Nations Food and Agricultural Organization. Mr. Ezekiel's federal service began in agricultural statistics in 1919.

George V. Gaines, agricultural economics graduate of the University of Georgia, has resigned as Secretary of the Cottonseed and Peanut Crushers Association of Georgia, Atlanta, Georgia, and has accepted a position in agricultural credit with the Citizens and Southern Bank of Dublin, Georgia.

Fred L. Garlock returned to the Division of Agricultural Finance, BAE, after four years with the Commodity Credit Corporation and the Production and Marketing Administration, to resume leadership in the short-term credit research work of that division.

Charles L. Harlan, head of livestock and poultry statistical work in the Bureau of Agricultural Economics, retired March 1 after more than 26 years of government service. Generally regarded as the country's foremost authority on livestock statistics, Mr. Harlan led in developing the Department of Agriculture's methods of estimating numbers, production and supplies of livestock and livestock products.

Margaret Jarman Hagood and other members of the staff of the Division of Farm Population and Rural Welfare of the Bureau of Agricultural Economics are developing indexes for measuring change in level of living of farm operator families from 1940 to 1945 for each county of the United States.

Harvey W. Hawthorne, agricultural economist in the Division of Farm Management and Costs, BAE, died on January 20, 1947, of a heart ailment. He had retired from service in the Bureau of Agricultural Economics on reaching his 70th birthday in 1945. Harvey W. Hawthorne joined the staff of the Office of Farm Management on November 1, 1912 and served continuously until his retirement.

Donald L. Henry has accepted a position as research economist in the Agricultural Economics Division of the Federal Reserve Bank in St. Louis. Dr. Henry completed his graduate work at Purdue University in February 1947.

Ernest Carl Jones, who recently completed the requirements for the M.S. degree at Louisiana State University, has accepted a position as Assistant Professor of Agricultural Economics at Louisiana Polytechnic Institute at Ruston, Louisiana. He assumed his new duties on March 15.

Martin B. Johnson has completed a long and successful career as a range economist in the Great Plains, retiring from the Division of Farm Management and Costs, BAE, at Lincoln, Nebraska.

Klaus E. Knorr has resigned from the staff of the Food Research Institute, Stanford University, and has accepted appointment at the Institute of International Studies, Yale University.

Mirko Lamer has joined the staff of the Food Research Institute as Acting Associate Economist, working upon the history of commercial fertilizers during World War II. Dr. Lamer was formerly Professor of Economics at the University of Zagreb, Yugoslavia, and director of the Croatian Institute for Economic Research.

Francis H. Lacy, Jr. has accepted a position as Agricultural Economist with the Monongehela Power Company at Fairmont, West Virginia, following completion of his masters' degree in Agricultural Economics at Purdue University in February, 1947.

Wayne A. Lee, who after release from the Army had been working with Fruit and Vegetable Branch and the Labor Branch of PMA, joined the staff of the Department of Agricultural Economics and Rural Sociology at Penn State in December. Doctor Lee will conduct research and teach in the field of fruit and vegetable marketing.

Edward L. Leland, recently with BAE, has joined the Missouri Valley Staff, Bureau of Reclamation, U. S. Department of the Interior, at Billings, Montana.

James G. Maddox, formerly Special Assistant to the Chief, BAE, is on leave doing graduate work under Dr. John D. Black at Harvard. Mr. Maddox left the Bureau in February and expects to be away for 1½ to 2 years.

Jack Magennis, formerly Purchasing Agent, Maxson Food Systems, Inc., New York, has joined the Division of Marketing and Transportation Research as Agricultural Economist.

Bynon M. Prance, agricultural economics graduate of the University of Georgia, formerly Director of the Farm and Home Program, radio station WSB, Atlanta, Georgia, has accepted a position as Agricultural Editor at the University of Georgia.

Roy L. Roberts recently transferred from the U. S. Department of Agriculture to the Social Security Administration where he will work specifically on the problems associated with the extension of the social security program to farm people. Mr. Roberts was with the Bureau of Agricultural Economics, U. S. Department of Agriculture, for seven years, the last three as a regional leader for the Division of Farm Population and Rural Welfare.

Charles R. Sayre, Jr., is now Superintendent of the Mississippi Delta Branch Experiment Station, Stoneville, Mississippi. Before his war service

in the Navy, Mr. Sayre was leader of farm management work of BAE in the Southeastern States.

LeRoy Schaffner has joined the Agricultural Economics Department of the North Dakota Agricultural College and will be engaged in marketing research for the Agricultural Experiment Station. Mr. Schaffner was formerly Industrial Analyst for the TVA.

Robert W. Schoeff has accepted a position as Assistant in Extension, Department of Agricultural Economics, with Purdue University, following completion of his masters' degree at Purdue University in February, 1947.

Raymond E. Seltzer has been appointed Assistant Agricultural Economist at the University of Arizona Agricultural Experimental Station. He will carry on research work in the field of marketing. This was the field of his undergraduate work at Illinois and his graduate study at Kanaas State College.

Felix E. Stanley, M.S. Cornell University, 1942, has accepted a position as Research Associate in the Department of Agricultural Economics at Louisiana State University, and is engaged primarily in marketing research. Mr. Stanley is a native of Louisiana, and received his B.S. degree from the College of Agriculture at Louisiana State University in 1940.

Christian A. Stokstad has rejoined the Division of Farm Management and Costs, BAE, with headquarters at Portland, Oregon, after $4\frac{1}{2}$ years in the Navy.

Robert D. Stormont has accepted a position with the Phoenix Mutual Life Insurance Company following completion of his masters' degree in Agricultural Economics at Purdue University in February, 1947.

Conrad Taeuber, formerly Special Assistant to the Chief, BAE, left the Department in December 1946 to accept an assignment with the United Nations Food and Agriculture Organization. Mr. Taeuber is in the Division of Economics and Statistics and will head up the work on the 1950 World Census of Agriculture.

Layton S. Thompson, Assistant Professor in Agricultural Economics and Economics at Montana State College, has returned to the staff after a quarter's leave in which he pursued graduate studies at the University of Chicago.

Norman R. Urquhart resigned his position as Agricultural Economist in the Division of Farm Management and Costs, BAE, to take up statistical research service in the Veterans' Administration at Baltimore, Maryland.

J. Van Rogers, Jr., recently county agricultural agent of Fayette County, Georgia, and instructor in agricultural economics at the University of Georgia, has accepted the position of Southeastern Field Repre-

sentative of the National Cottonseed Products Association, Inc., with headquarters in Atlanta.

Cruz Venström has transferred from the Division of Farm Management and Costs, BAE, to the Bureau of Reclamation, U. S. Department of the Interior at Sacramento, California.

Lawrence W. Witt has been appointed Associate Professor of Economics (Agricultural Economics) at Michigan State College. Dr. Witt was formerly associated with the Technical Collaboration Branch of the Office of Foreign Agricultural Relations, USDA. At Michigan State, his duties will be divided between teaching and research with major emphasis on international aspects of agriculture.

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LAND ECONOMIC RESEARCH IN THE ALLUVIAL VALLEY OF THE LOWER MISSISSIPPI RIVER

ROBERT W. HARRISON*

Bureau of Agricultural Economics

THE economy of the alluvial valley of the Mississippi River is based upon an elaborate series of reclamation projects designed to protect the land from the annual rises of the Mississippi and tributary streams, and to remove surface water. Levees, drains, and pumps constitute a vast interrelated system, extending from Cape Girardeau, Missouri, to the Gulf of Mexico. This system is the result of a long and complex effort whose history encompasses the development of new engineering techniques, new or improved economic and social methods and institutions for handling the financial and social aspects of the expensive works, and even the evolution of political concepts.

Nowhere has this work of reclamation been completed, nor is it likely to be. Experience has shown that to succeed, the processes used in flood control must be as dynamic as the great river which dominates the life and history of the Valley. Drainage works are in constant need of repair and improvement. Not only is the reclamation incomplete but there is a noticeable variation in the level of accomplishment, measured either in terms of relative perfection in reclamation or in level of economic output. Thus, a fascinating opportunity is offered for comparison of the physical, economic, and social processes in the several areas as they bear on the level of land development and ultimately upon group welfare.

* Many of the topics in this paper grew out of discussions with my friend, Walter M. Kollmorgen. Mr. Hugh Wooten, Mr. John Mason and Miss Margaret Purcell offered material assistance. I am indebted also to Professor B. M. Gile, Mr. Charles R. Sayre and to many other economists working in the Mississippi Alluvial Valley. This paper deals with Land Reclamation. A second paper will concern research in the field of agricultural settlement and the rise of commercial agriculture.

Besides flood control and drainage, a third activity, land clearing, is essential to land development throughout the Valley. In practice these three activities—flood control, drainage, and clearing—have not been carried forward uniformly because they have been attacked by different interest groups and organizations and because the complexity of reclamation varies in different parts of the alluvial plain. Frequently land clearing has proceeded more rapidly than drainage, resulting in heavy personal losses and in social unrest. Land clearing as a step in reclamation is just as important as drainage or flood control, a fact which has frequently been overlooked in making settlement plans or other policy decisions. Allied as it often is with farm operations, the study of land clearing brings the problem of reclamation directly to the individual farm in a manner probably even more intimately associated with the farm business than land drainage. Closely associated with land clearing activities in the Valley are lumber companies, railroads, levee boards, and plantation interests. The relation of lumber companies, railroads, plantations and other institutions to land clearing and settlement, and thereby to drainage and flood control, forms one of the major axes for land economic investigations.

It is the purpose of this paper to show that in their broadest sense the accomplishments and failures in land development and settlement in the alluvial valley of the Mississippi River offer land economists an almost perfect setting for research in the anatomy of land reclamation. Such research should lead to knowledge of how best to effect improvements in the reclamation process and to remove some of the economic risk and physical hardships from land settlement, particularly "new-ground" settlement. This research should also serve as a basic framework for beginning analysis of the detailed adjustments expected in the cotton and sugar cane areas when mechanized equipment is again fully available. The long range significance of these adjustments makes it urgent that students of specific problems be provided with a workable knowledge of the general scene in which their individual work falls.

Some Misconceptions

In discussing the Mississippi's alluvial plain, the "Delta" as it is frequently called,¹ it is usually necessary to clear up a number of

¹ In conversations and popular writing the entire alluvial valley is frequently called the "Delta" or the "Mississippi Delta." The true delta begins near Angola, Louisiana (not at Baton Rouge, as is so often stated) and extends in a great fan shape to the Gulf.

popular misconceptions concerning the nature of the physical and cultural environment. First, the "Delta" is not a physically homogeneous area. There are wide variations in such basic factors as rainfall and length of growing season and consequently in crops produced. Furthermore, the soils while all are of alluvial origin, differ widely in the amount of silt and sand they contain and therefore in such important factors as ease of cultivation and drainage as well as productivity. There are noticeable differences also in elevation and slope from north to south in the Valley, slopes ordinarily being much greater in the more northern part. Naturally these factors are all of great importance in determining the type of agriculture suitable to various parts of the area. Physical differences are of decisive importance also in flood control and drainage engineering. North of Angola, Louisiana, for example, the Mississippi River is not running in its own alluvial deposit and the meander pattern is much less stable than below in the "true" delta.

The human, or cultural, geography of the Delta is also far from uniform, though rather frequently agricultural literature leaves the impression that it is a uniform land of large cotton plantations farmed by Negroes and managed by white "strawbosses." There are large cotton plantations farmed by Negro sharecroppers and managed by hired overseers, but there are also 40-acre cotton farms farmed by their owners and "managed" in considerable part by the local Farm Security Administration representative. There are also sugar plantations, and in juxtaposition small cane farms worked by the Acadians whose self-sufficient agriculture is one of the Nation's oldest. Large areas of coastal marsh land are "farmed" by trappers for muskrats, while some of the marsh lands have been reclaimed for vegetables and general crops through the use of dikes and large-scale pumping plants for exhausting the surface water from the enclosed area. Near the top of the Valley is found a relatively new economy, or type of farming, built around a rotation of corn, cotton, and soybeans on 60 to 140 acre farms settled mostly by immigrants from the Corn Belt. Here Negroes are rarely found, while a few miles away in areas recently settled by cotton planters moving north to escape the weevil, they constitute more than half of the population. With these facts in mind it is easy to see what errors one falls into by defining the Delta as typically southern in thinking and/or psychology.

True, in some segments of the Valley, plantation interests with

southern traditions predominate, but in many counties, perhaps most, small farmers from the hills of Kentucky, Arkansas, Louisiana and Mississippi; Negroes trying to clear "new ground"; subsistence colonists (from FSA days); and homesteaders (donators, they are called in Arkansas) settled on state land forfeited for taxes, rub shoulders. It is a mistake to think of the Valley's agriculture as either old and established or new and struggling. It is partly old, older than the Nation, and partly very new, as new as the last depression when many of its cut-over lands were first settled. It is rather a habit in agricultural circles to talk of the Delta as a rich and prosperous land, physically and financially, and to forget that it has been frequently a land where men failed to find the homes they sought, and where they grew old and poor fighting the forest from clearings not yet drained.

Apparently to every man—the cotton planter, the French sugar maker, the *Cajun* on his bayou bank, the Corn Belt immigrant with his tractor, the trapper in his pirogue, and the new-ground farmer with his axe—the Delta has a meaning, but it is a meaning as different as the men who live and build in the Valley.

It is clear then that there are no simple answers to the economic problems of the alluvial valley. In fact, there are no such answers to the much less complex physical problems. It is certain also that what to some appear to be perfectly impartial solutions, to others will seem far short of ideal, or even undesirable. Economists when functioning as administrators, must take care to distinguish between the ideas and aspirations of the various classes which make up the complex society of the Delta. Only in rare instances will the over-all directive be an effective social tool in the Mississippi Valley.

The Scope of Research

The objectives of most economic research are practical and for this reason are limited by what is presently important. Agricultural economics research in the Delta has been determined most often by considerations of current interest. This concentration upon immediate problems amounts to a predetermining of the range of research interest and has had the unfortunate effect of leaving unturned several important fields which almost certainly hold many clues to specific problems of immediate importance, and provide

the perspective essential to a dispassionate judgment and evaluation of the long-term economic affairs of the Valley.

In an area such as the alluvial valley of the Mississippi, where matters of great current importance—flood control, drainage, clearing, to say nothing of the usual problems common to cotton and cane production—are also those with which past generations were preoccupied, the study of economic history is particularly rewarding. In such a setting so many of the economic problems turn out to be problems of institutional arrangement that it is necessary to have a workable knowledge of local history to understand what will constitute a reasonable approach to even the simplest assignment. Work now in progress suggests that the historical phases of research in land development and settlement in the Valley will, when completed, provide a much better basis than is now available for understanding why various parts of the "Delta" have developed faster than others; how local institutions (particularly those connected with land reclamation) have developed and worked; and the degree to which outside influences are countenanced in local affairs. For example, research in the evolution of flood control policy, tracing the gradual shift of this problem from one of purely personal responsibility to one of Federal responsibility, affords an almost ideal opportunity to examine at nearly every stage in its life cycle the breakdown of a once deeply entrenched philosophy of individual and local responsibility. It will not be amiss to observe that this shifting of responsibility has made of the Federal Government a government of substance rather than a government of philosophy. Likewise, it places the individual or the local group in the position of pleading for help from a higher authority rather than acting on individual or local initiative. In this transfer of function which has taken place in the Mississippi Valley over the last 200 years, one will find the key to many current attitudes of "Delta" people concerning the function of the central government in land reclamation and development problems, and indeed, toward all agricultural problems. The history of the alluvial valley—the coming of settlers, the struggle to control the river, to clear and drain the land, to allocate the costs of these works among individuals and units of government, the rise of commercial crops, the changing concept of Federal responsibility—is then essential to the land economist in making his ap-

praisal, in answering the questions asked of him. The perusal of the economic history of the Valley is therefore properly within the scope of proposed and needed research.²

It is difficult in agricultural economics research to know how far to go in presenting physical data which are so intimately associated with economic affairs in agriculture. Even more difficulties than usual arise in this connection when the setting for research is the Mississippi Valley. Here, almost every question likely to concern the land economist has an intimate connection not only with climatic, soil, and agronomic facts, but with complicated engineering questions of flood control and drainage as well. At many stages in the research program of the economist it is desirable that he work closely with the research engineer in order that there may be an interchange of ideas and that each may understand the full program. In the past this proposed union of land economics with engineering has seldom occurred. There are a number of reasons why economics as a science has been so little associated with the extension of land reclamation measures in the Mississippi Valley. Primarily flood control and drainage functions, where engineering is dominant, have been furthered by political means. The catastrophic nature of floods served well the aims of local officials seeking support for their programs. Devastated fields and villages served the place of economic reports in justifying public expenditures. The advice of economists was hardly thought necessary; they were not usually helpful in emergencies. Thus, the history of flood control and land drainage in the Valley is in considerable part a recounting of political strategies, underlaid at best by humanitarian considerations and at worst by selfish motives, but seldom directed or even influenced by dispassionate students of economic data.

Economists need not unduly lament their absence in the Valley during the formative years. They are seldom in on the beginning of such ventures. It rather has been their lot to help salvage the ruins left by land promoters and over-enthusiastic sponsors of public works. Reclamation work in the Mississippi Valley has to a large degree passed the promotional stage. There is every reason to believe that future alterations and expansions in the flood control program can to a considerable degree be made on the basis supplied

² The vast collections of historical material relating to the Mississippi Valley have long interested economists though they have seldom found time to interpret them. The works of Phillips and Grey immediately come to mind as outstanding exceptions.

by economic analysis, rather than upon public excitement following flood as in the past. Likewise, drainage organizations—there are 600 or more separate districts or associations now active in the Valley—have gone through their initial period of wild expansion, beginning in 1900-07 and ending 25 to 30 years later in bankruptcy and years of inactivity, and are ready to begin the long and costly task of rehabilitation and integration of systems, tasks in which the economist may play an important role.

The proposed association of economics with engineering does not presuppose any loosening of the tie between economic investigations and the problems of sociology and rural welfare. Assuredly land economists working in the Valley will be interested, as always, in population, methods and patterns of settlement, institutions governing the factors of production, social experiments and innovations, and in the study of social trends which may influence land use. Certainly the emergence of a mechanized cotton and cane economy will force upon both the land economist and the farm management specialist a series of problems of the greatest urgency. The crop and livestock adjustments which technological improvements in production and changing markets for cotton and cane are making increasingly urgent, certainly are a major field for study by agricultural economists, as will be shown below in an outline for land economic research in the Delta.

In this review of the scope of land economics research, mention should be made of the political science aspects of the problem, i.e., the socio-government processes involved in land development and settlement. The introduction of so comprehensive a field may at first seem unduly to broaden the scope of land economics research, perhaps to overshadow it entirely. Reflection upon the scope and importance of government-sponsored activities in the Valley, not only in terms of the enormous contributions to flood control works but also to such problems as farm drainage, land settlement, crop adjustments, etc., will make clear the necessity of recognizing as a distinct phase of land economics research the part which government programs play. One of the major themes in the history of land reclamation in the Mississippi Valley is the ever-expanding role of the Federal Government. Recognition of the now dominant role of government in land matters should be followed by research designed to make clear the functions which government has assumed directly, those which it has assumed in cooperation with State or

local agencies, and those which remain to the individual. No small part of the confusion in land affairs in recent years in the Valley has arisen from the failure to comprehend the magnitude and the limitations of governmental functions. Later in this paper further comments will be made on research into the status of government in land affairs in the Mississippi Valley. Suffice it to say here that land economic research should, and does, have as one of its major aims the improvement of services rendered by government. It constantly must develop criteria for the evaluation of these services in terms of their contribution to society as a whole lest the pressure of vested groups lead to the practice of developing projects of only local benefit.

Sooner or later the economy of the Valley must be appraised in terms of its contribution to the general economy. Only by increasing this contribution can the heavy public subsidy to the Valley be justified. The earliest discussions of the proper function of the Federal Government in Mississippi Valley flood control work center around the contributions of the Valley to National welfare. Modern discussions must return to this pivotal issue.

So far in this discussion of the scope of land economic research for the Valley there has been an effort to avoid a statement of merely current problems, lest they obscure the long-run aims of the research program designed to serve as a basis for many types of short-term studies. There are, however, important current problems which will justify rather intensive study. Immediate need for study of land development and land settlement in the Delta arises out of the interest of returning veterans and others in farming, and the potential opportunities believed to exist for developing farm land in this region. Preliminary agricultural surveys of the Valley indicate that many acres can be developed for farming. These studies also have shown numerous problems in new land areas. Many unhappy farm settlement experiences have occurred. However, evidence also shows that in the past quarter century in certain parts of the Alluvial Valley many successful new farms have been created.

Many useful materials from the agricultural surveys in the Valley have never been thoroughly analyzed and summarized for publication. It is appropriate to review the reports and other data on new farming possibilities now available for the Delta and to make a reappraisal of the new farming problem, the opportunities that exist, and ways and means to realize on the opportunities.

Study of available opportunities should attempt to present the salient physical and economic factors which bear directly upon the development and settlement of new lands in this area. This would involve a study of (a) the nature of the land in the areas available for development, its extent and character, and present stage of improvement; (b) the recent experiences in land development and settlement with the view of bringing out causes of success or failure; (c) the impact of changing agricultural conditions, such as demand for farm products, use of farm machinery, and improved production methods; and other economic and social activities which are now affecting the direction of future agriculture in the "Delta" area.

An appraisal such as that outlined above, of new land development in the Lower Mississippi Valley, cannot be made without rather detailed study of the work various public agencies have and are contributing to the reclamation of these lands. Only after the reclamation phase of work in the Alluvial Valley is set forth will it be possible to describe adequately the agriculture of the Valley and to view the prospective development. The second part of a study, dealing with future possibilities, is more complex than that dealing with inventory and analysis of the present land situation. The influences affecting future development are highly diverse. Only by carefully examining this past and present diverse agricultural picture will it be possible to gain some hints regarding future possibilities for new farms in the lower Valley.

Physiography of the Alluvial Valley

There is not sufficient appreciation of the degree to which the present and potential economy of the Mississippi Valley is molded and limited by physiography. The nature of the natural levee formations, of the bayou as a distinctive type of stream pattern, the variety and sources of soil-farming materials, the multiple-basin character of the alluvial plain, and many other elementary physical facts have been largely neglected in planning agricultural expansions or other economic operations. Frequently, these same physical conditions have been overlooked or improperly interpreted by flood control and drainage specialists, with consequent loss in efficiency of their structures.

In recent years several comprehensive studies of the geology and hydraulics of the Alluvial Valley have been carried out by the Mississippi River Commission and the United States Waterways Ex-

periment Station. This research and other investigations, as those of Russell, of the natural character of the Valley must serve as the basis for future economic studies whether of new land development or better protection from flood and drainage water for present cultivated areas. The structure of the Valley and the character of the river which created it are therefore the first factors for consideration in all economic appraisals whether they be flood control surveys, agricultural drainage studies, wildlife refuge selection analysis, marshland reclamation reports, or selection of land suitable for clearing.

It will be necessary in many instances to undo or abandon some of the land reclamation work done in ignorance or defiance of the physical structure and laws of the Valley. Much of the expensive drainage system installed between 1905 and 1920 was engineered without regard to or understanding of the requirements of the physical setting. Social or political considerations frequently determined the locations of drains, levees, and dams. These will have to be relocated in many instances to conform to the physical setting.

Such current questions as possible means of reducing the acreage damaged by backwater, the development of floodways, selections of coastal marsh areas suitable for reclamation or development of planned siltation programs are all related closely to the physiographic situation. The absence of adequate topographic maps and air photographs has in the past often made it difficult, even for the specialist, to get a clear mental picture of the valley in terms of a unit or great basin, made up of several major and many minor interrelated basins. Now that detailed maps and aerial mosaics are available, it is important that the land economist bring these into use as a basis for planning even the smaller flood control and drainage structures. Where large-scale clearing and settlement operations are planned, detailed studies of physiography must be made. Failure to make these physical surveys cost the Farm Security Administration many thousands of dollars, the expenditure of which did not begin to correct or make up for original mistakes in selection of sites for colonies.

It would probably be difficult to find an area where so much work has been done in disregard of the physical character as in the Alluvial Valley of the Mississippi River. The localization of political power has led to a series of futile attempts to solve on a local level such physical problems as flood control and drainage which required

action on a broader than local or even state basis. The development of a systematic approach to the problems of land development and settlement will not be easy in the Mississippi Valley where many faulty methods of carrying out flood control, drainage and clearing have become institutionalized.

The sections on physiography in the proposed research reports on land development and settlement possibilities should contain sufficient data to make clear the major physical characteristics of the Valley and the importance of investigating them when planning land developments.

Flood Control

Very few studies of the economic basis of the flood control program as it is carried out in the Mississippi Valley have been made. Even the more or less obvious phases, as the land taxes imposed by levee boards have been treated imperfectly or neglected entirely. Probably more is known about drainage district financing and philosophy than about flood control, yet throughout the Valley, flood control is the primary reclamation upon which all secondary agricultural drainage, irrigation, and clearing works rest. Research into the origins of the flood control program and examination of its current status are therefore essential to an understanding of the Valley.

Early settlement records attest to the elaborate means used to protect the lands from annual floods. As cotton and sugar plantations were established along the Mississippi River, land proprietors were held responsible for building levees along their property and for keeping them in repair. Local laws provided for assessment of fines in case of failure to perform this function. In the more prosperous days of the pre-civil war sugar industry, slaves were rarely used on the levees, being considered too valuable for such heavy work in the malarial swamps. Gangs of immigrant Irish laborers under harsh contractors built and kept the levees up to grade along the lower stretches of the river.

Complete dependence upon private efforts for flood protection soon gave way to group responsibility. The parishes devised several methods of carrying out and paying for flood control works. In the early years, county (or parish) and state-owned slaves and prisoners were used. In Louisiana the Board of State Engineers (organized early in the 19th century) supplied a rather high level of

technical guidance. The little known early reports of this agency are among the most valuable histories of early flood control undertakings.

Probably the most intensive efforts to put flood control projects upon a State basis came shortly after 1850 when the United States Government granted the States all the "Swamp and overflowed" lands within their borders on the condition that they be sold and the money used for reclaiming as much of the low land as possible. The Mississippi Valley States set up very active swamp land administrations. Review of the work toward reclamation (flood control and drainage) done under the Swamp Land Grants of 1849 and 1850 has shown that this was a very important period in the history of land reclamation in the Mississippi Valley, a period in which policies and methods were established which have had permanent influence on the institutions carrying out flood control and drainage work. A study of the administration of the Swamp Land Grants is now under way as a part of land economics research in the Valley. Besides yielding considerable knowledge directly related to flood control and drainage, this work, it is hoped, will lead toward a fuller knowledge of the early settlement patterns of the Valley. The Swamp Land Acts were administered in ways which favored the expansion of the plantation type of organization in many areas. Sufficient analysis has been made to show the relationship between the methods used in administering the Swamp Land Grants and the growth of the plantation economy, particularly in the cotton areas of Louisiana, Arkansas, and Mississippi.

The failure of the French-speaking farmers, settled along bayous of lower Louisiana, to take an active part in swamp land affairs or to buy marsh and overflowed lands from the Board of Swamp Land Commissioners and later from levee boards, has had a profound influence on their economy. These lands upon which they depended as hunting and fishing areas are now held by absentee owners who exact high rents in terms of the animals trapped.

These are illustrations of a few of the many influences of the Swamp Land Acts upon agricultural development in the Mississippi Valley. These Acts represent the first important Federal legislation in the field of agricultural drainage.

Reclamation development so hopefully begun under the Swamp Land Acts was destroyed largely during the Civil War when the uncared for levees were all but washed away. During reconstruction

some efforts were made to put the old swampland administrations in operation, but most of the easily reclaimable swamp land had already passed into private hands and efforts to sell the remaining swamp and overflowed lands were largely a failure. Clearly a new method of organizing local interests for flood control efforts was needed.

Levee Districts

A partial answer to the need for organizing local interests in the fight against floods was found in the creation of levee districts. These governmental units, with police and tax power were created in great numbers in the late 19th and early 20th centuries. The creation of the Mississippi River Commission in 1879 stimulated the formation of many levee districts. Levee boards were instructed to work closely with the Commission. Funds of levee districts were used to match the funds appropriated by the United States Government for river improvement work which, though carried out largely under the name of "navigation improvement," was actually a flood control effort.

The history of levee districts is important since these districts for many years served as the major connecting link between local interest and the Federal efforts at river improvement and flood control. The fact that many thousands of acres of swamp and overflowed and tax-forfeited lands were granted levee boards by the States greatly increased their importance. In the history of levee districts, particularly the history of their financial contribution to levee building, we find an excellent illustration of the general trend toward a greater reliance on the Federal grant for financing, direction and control. The modern levee districts do little but police the levee. Each year the contribution of the local district to the financing or actual construction of levees has grown smaller. In some instances, they do not even provide right-of-way for setback levees when these are required. The providing of right-of-way was one of the chief functions of levee districts when they were first organized. In the changing concept of levee district duties, is reflected many of the changes in philosophy and attitude toward the functions of the several levels of government.

Research into the place of levee districts in the economy of the Mississippi Valley should make available better data than we now have on the financial contribution of local people to flood control

work. Very few studies of the financial structure, tax policies, and land policies of local levee organizations have been made. The fact that levee districts have broad police powers and taxing privileges has made them appropriate bodies to take over some of the functions heretofore assigned to local drainage districts. The levee districts along the Red River are under the encouragement and direction of the Louisiana Department of Public Works now in the process of assuming some of the local drainage responsibilities. If local participation in flood control is to become more meaningful both in terms of financial contribution and in public understanding, levee districts must be put on a sounder basis. Research now in progress includes a detailed examination of the current financial status of levee districts and a study of their history. It is hoped that this research will lead to an appraisal of the potential usefulness of levee district organization. Unless they can serve a more positive function than is now the case, they will soon become dead units of government, cluttering legal records but serving no practical purpose. As the currently organized and legally empowered link between Federal and local governments, they may yet have a place in reclamation work. What this place will be will depend to a large degree upon the attitude and planning carried on by the State governments.

Federal Efforts

The magnitude of the Federal efforts to improve navigation and control the floods of streams in the Lower Mississippi Valley has tended to obscure the relation of this great work to the specific problems of land development and land settlement in the Valley. The economic aspects of the Federal flood control program have not been considered sufficiently. Such studies as have been made have been confined either to details of hydrology or other phases of engineering or have recorded the political aspects of flood control and navigation legislation. Valuable as these studies are, they fail to answer the questions of the economist.

In the formative years of the flood control effort, little attention could be given to the refinements in the system. The main task of preventing annual devastating floods consumed all energies, both engineering and political. Flood protection, although not assured, has reached the point where considerable time can be turned to refinements in the reclamation process. These refinements will in-

volve careful economic analyses, and where they envision new approaches to the basic methods of flood control, they will bring also into operation new engineering research. For example, many of the plans for reducing the major backwater areas, which occur where main line levees are broken to admit major tributary streams, demand careful agronomic surveys to determine the quality of the land which will be protected under alternative engineering plans. Where agricultural developments have begun in backwater areas, the social and economic life of these settlements must be considered. Likewise, the problem of locating floodways or undertaking siltation³ programs which may lead to new land developments or provide for better protection for settled areas involve land economic surveys of various types.

The Federal flood control work in the Mississippi Valley has been in a large measure achieved by constant resort to political *pressure supported* by aroused public sentiment following major floods. This method of promotion has resulted in many disharmonies and has become less appropriate as the reclamation has matured. One of the major responsibilities of students, citizens, and public administrators interested in the Mississippi Valley is to work toward an economically sound method of financing flood control work. No categorical answers as to what methods are appropriate to this task are possible. The land economist working closely with the engineer and the public administrator should be able to make a substantial contribution to this field. Land economics research now under way in the Valley includes a detailed study of the evaluation of the flood control program in terms of political and economic responsibility for the task. Whether the trend toward increasing Federal financial contributions and control should continue is problematical. There may be opportunities for more meaningful local participation now that the initial building period is past.

National public subsidy for flood works in the Mississippi Valley has reached staggering proportions. Increasing attention must be

³ The possibility of developing many thousands of acres of land lying in the lower Mississippi Valley through a planned program of siltation is worth exploring. The waste of soil resources under the present system is tremendous. It is possible that a large part of this waste could be avoided through the use of floodways leading into the natural interstream basins of the lower valley. This type of conservation is actually in operation in the Atchafalaya Basins, although the floodway was designed with flood control and not land development in mind. At a later date flood control structures may serve the dual purpose of protecting old areas and creating new ones.

given to the justification for expenditures of public money in the Valley. A critical appraisal of the contribution of this heavily subsidized area to the welfare of the nation leads to a consideration of the economic opportunities the Valley affords, both realized and potential. While land economists are perhaps chiefly concerned with the immediate problem of the efficiency of the reclamation works (flood control, drainage, and clearing) they are also deeply concerned with the changing status of the major crops of this valley, cotton, sugar, rice, etc. in the economy of the Nation. The heavy public subsidy of recent years to producers of the chief crops of the Valley make it doubly necessary that subsidy to land reclamation be kept at a minimum pending economic adjustments which will lead, it is hoped, to a sounder general economy in the Valley.

Unfortunately economic studies relating to flood control have never been publicized properly. Some of the excellent reports of the Mississippi River Commission and the U. S. Army Engineers are almost unknown. Much of the basic material is unpublished. Collection and organization of this material is the first step in an economic appraisal of the Valley. The work is now in progress.

Drainage

As stated above, flood control, drainage and clearing are three basic steps in land development in the Mississippi Valley. Work in these three fields has advanced simultaneously, but not necessarily uniformly. Sometimes drainage works have advanced more rapidly than the status of flood control warranted, with consequent loss of capital investments. Often clearing for agriculture has got ahead of drainage, resulting in much suffering and economic loss to the new-ground farmer and his family. Thus, while drainage and flood control are parts of the same task, they have different histories. The drainage movement and the flood control movement in the Mississippi Alluvial Valley are different entities, requiring separate study. A step essential to the eventual integration of these two closely related programs is an understanding of their separate histories. Flood control and drainage interest seem often to have fought against each other. This struggle, however, has arisen not out of any basic physical conflicts but from the short-sighted interest of various landed groups, as lumber company against crop producers, established planters (located on the higher natural levees) against the new-ground farmer of the lower interstream areas, etc.

Research in drainage now in progress falls into three broad fields:

1. A study of the present status of drainage organizations, including an analysis of their current finances, tax practices, and relation to bondholders and credit agencies.

2. An examination of the history of the drainage movement and the relation of drainage works to the physiographic setting, on one hand, and the structure of rural society in the Valley on the other. (This involves an examination of the major economic interest sponsoring drainage and research into local institutions which they have developed. Sufficient research has been done in the Arkansas-Red River segment of the Mississippi Valley and in the Teche and Lafourche basins of lower Louisiana to show that deeply entrenched local institutions for handling drainage are inappropriate to the physical problem which confronts them. In such situations improvements in agricultural drainage becomes a slow social process requiring patience and skill in seeking to combine the divergent short-term interest of conflicting local groups.)

3. An evaluation of methods for local, State and Federal contributions to agricultural drainage work.

The third field of research in drainage is of considerable current interest in states such as Louisiana where a reorganization in the structure of the local drainage organizations is under way. Studies falling under fields one and two are steps toward the factual data and are prerequisite to a consideration of method for agency.

The modern drainage movement in the Mississippi Valley originated early in the 20th century and reached a peak just before the first World War. In this period probably over 1,000 drainage organizations were set up under the various state laws which usually allowed them to levy taxes against property, sell drainage bonds based on their tax reports, and in other ways engage in the financing and carrying out of drainage programs.

Research now under way indicates that this vast drainage organization of the Mississippi Valley has gone through several distinct cycles in terms of physical accomplishments and financial operations. Studies of the drainage organizations in the basin lying west of the Mississippi River between the Arkansas and Red Rivers indicate that the average life of a drainage system receiving little or no maintenance is about 20 years. The financial history of drainage organizations shows that refinancing has taken place about every 20 years as rehabilitation is required. A very large proportion of the drainage channels of the Valley are now in need of

rehabilitation, and the financial status of the districts indicates that a new period of refinancing must soon begin. Fortunately most drainage associations have been able during the last 5 years to liquidate much of their bonded debt. During the 1930's refinancing through the Reconstruction Finance Corporation was effected for most of the larger districts. In this process about 45 percent of the drainage debt was written off and the remainder refinanced at a lower interest rate. The refinanced debt in the great majority of cases is being retired in an orderly fashion and in many cases has been paid completely. As drainage organizations are now relatively free of debts for the first time in 40 years, and as major improvements must be made soon in the system, most of which have been completely neglected during the war or longer, it is an ideal time to consider their status, history and plans for future operations.

While the experience and degree of success of drainage districts in the Mississippi Valley has varied greatly, certain weaknesses in the general system have long been apparent. In almost every case districts have been too small to deal successfully with the drainage problems. Engineering has been faulty and undertaken in such a piecemeal fashion as to preclude an understanding of the basin-wide relationship. Local control has been so rigid and jealously guarded that cooperation between districts has been impossible, and frequently feuds have been carried on to the detriment of all parties.

Improvement of drainage affairs has long been desired. A number of State agricultural colleges have made studies of the local improvement district laws and of the actual operation of the drainage districts. The great burden of old debts made it impossible to seek new methods or organizations for carrying out the programs. The assistance of the Federal Government was limited to offering some technical aid, to helping with refinancing programs through the Reconstruction Finance Corporation and to providing limited amounts of rehabilitation through the Works Progress Administration and related agencies.

This picture has been radically altered in the last three or four years by the greatly-expanded Federal contributions to drainage work. The Soil Conservation Service has undertaken to expand its contribution to on-farm drainage engineering. Conservation districts have been established throughout the delta area of Louisiana and Mississippi. Some progress is being made in organizations in

Arkansas. In Missouri very little drainage improvement has been done by the Soil Conservation Service. Besides the work of Soil Conservation Districts, the Federal Government, through the U. S. Engineers, is now engaged in improving major drainage outlets.⁴ This work is of the greatest importance to the Mississippi Valley States. In the past, flood control and navigation funds have not been available for drainage work. The redefinition of the term "flood control" to include "major drainage" has opened an important new field of responsibility for the War Department. The development of this responsibility is just beginning. Its influence on the future of agricultural drainage in the Valley is certain to be profound.

Development of these action programs on the Federal level has raised many difficult questions of local and State participation. Under the system of locally organized and managed drainage districts, which has prevailed throughout the Valley, the State governments maintained little interest in or control over drainage affairs. In some States records at the capital concerning drainage are so meager that it is difficult to obtain even the names of the active districts to say nothing of the details of their operations. Research now in progress has made clear the urgent need for closer State control over drainage planning and operation.

The present condition of district affairs makes this an auspicious moment for development of active State administrators capable of surveying local needs and working with Federal agencies active in drainage engineering and financing. The number of local organizations is so great and their individual jurisdiction so limited that it will be difficult for them to work with Federal agencies. Probably the most important aspect of drainage research now under way is the attention it will call to the need for carefully planned State programs to represent local interest.

The state program often falls far short of the ideal of a Valley-wide coordination of reclamation work. In the past, a number of "State-line" drainage controversies have done much damage to the development of a unified drainage program for the Valley. It is hoped that the presence of Federal interest in "major drainage" will prevent effectively these costly interstate feuds. In the absence

⁴ Public Law 534—78th Cong., 2nd sess. provided: "That the words 'flood control,' as used in Section 1 of the (flood control) act of June 15, 1936, shall be construed to include channel and major drainage improvements," p. 9.

of a completely unified program for the reclamation of the Valley, active state agencies for coordinating the work of the many local organizations seem to be the best arrangement. Louisiana now has an active State organization working with the Federal agencies on agricultural drainage. Mississippi and Missouri have at various times had active state departments working with local and Federal groups on water problems. Their programs should be enlarged and broadened to cover some method of relieving the local districts of some of the responsibilities which they have proved poorly suited to carry. Arkansas has not developed an active state agency for studying drainage needs. Such an organization is needed greatly. Studies of the history of drainage, and particularly of the institutional aspects, should enable public administrators to develop workable state departments.

The experience of the state of Louisiana in developing an active Department of Public Works, initiating a State-wide drainage program, is of interest to other states facing the problem of putting land reclamation work on a sound basis. This program aims to coordinate all drainage engineering on the basis of appropriate drainage basins and all drainage financing on a parish or levee district basis. As a part of land economics research in drainage, the Louisiana program of reorganizing drainage is being studied with the hope that its desirable features may be introduced in other states facing similar problems.

Whatever state plans are made for administering drainage, they must provide for a large degree of interstate cooperation. The drainage basin is the minimum essential unit for planning drainage engineering even when such units are out of state lines. The outline shown above suggests a series of basin studies with the aim of calling attention to the natural areas which cannot be ignored if efficient drainage is to be achieved. Once these have been fully acknowledged, the several states are in a position to work toward the fulfilment of the basin-wide drainage plan.

Land Clearing

Land clearing is so closely allied to the land settlement process that it is studied frequently as a part of the settlement phenomenon. Reports on the development of our agriculture pass lightly over the clearing period with little but romantic reflection and wonder at how the herculean task of removing the forest was

achieved. In the Mississippi Valley where large areas remain to be cleared, it becomes a practical matter to obtain more detailed data not only on the actual history of land clearing but on new methods and techniques. Toward this end land clearing studies are being assigned a place in the general study of land reclamation where the techniques of clearing can be given the same attention now centered upon flood control and drainage aspects of land development.

Research in clearing will encompass three important fields: (1) the evolution in the technique of land clearing; (2) a survey of the institutional pattern of land clearing as it is carried out in the Alluvial Valley; and (3) the scope of probable future clearings and estimates of the land suitable for clearing for cultivation or pasture.

Power equipment and explosives for clearing land are now becoming available. Little equipment was manufactured for this purpose during the war. The new machines are, for the most part, much improved. Surplus equipment, caterpillar tractors, graders, etc., is now available in large supply. These facts help to account for the extensive clearing operations now under way in the Alluvial Valley and for the extensive plans for further work.

Comparative cost studies of land clearing operations are needed badly. Some scattered records are now being made by machinery and explosive manufacturers, but these should be supplemented by one or more comprehensive surveys. Cost studies of clearing are now being planned.

Important as comparative costs are to an intelligent understanding of current clearing problems, it is probably more important to know something of the actual process by which land is cleared. This involves a study of several institutional arrangements. Studies of new-ground settlements in Louisiana indicate some of the common methods used in getting land cleared. Many of these methods work to the disadvantage of the laborer who is a prospective settler. Enough is known of the complexity of the clearing practices to plan research which will encompass the clearing operations of plantations, lumber companies, and settlers on tax-forfeited land. State land agencies, railroads, and various credit agencies also have an interest in the clearing process.

The practices and methods as well as the ultimate social result of clearing operations vary widely for the various parts of the Valley. Sometimes important differences in State law and management of tax-forfeited land account for this difference; in other cases the

policy of local lumber companies or other landed interests distinguishes the area. In some parts of the Valley, notably in north-east Louisiana, the sale-contract has been used frequently as a method for attracting settlers to new-ground areas where they are offered land without having to make any immediate cash payment. Later payments frequently proved oppressive and the land was turned back to the owners but not before considerable acreage had been laboriously cleared. In a number of instances important plantation communities were cleared in this fashion through the use of sale contracts. This illustration is not intended as an indictment of the sale contract, but only of the improper use of this instrument or of its specific terms.

The probability that the Federal and State Governments may at some time assist veterans in developing farms in the Alluvial Valley makes it particularly desirable that information on clearing practices and the extent of areas suitable for farming be kept up to date.

Much field survey work is required in making the type of studies outlined above. The excellent air photographs covering the Alluvial Valley are of considerable help, particularly as the various series of photographs make it possible to study the rate of clearing for selected areas. They are valuable also as an aid in selecting areas to be surveyed by enumerative methods.

Getting Coordination in the Reclamation Program

Students of the Mississippi Alluvial Valley usually are impressed with the scattered, piecemeal, and seemingly unrelated attempts at flood control, land drainage, and clearing. It is only in the last 20 years that a degree of unity and coordinated planning has been achieved in the administration of flood control efforts. The predominant part the Federal Government has taken in flood control efforts accounts for whatever coordination there is in this work. In the more than 200 years during which local and state groups dominated flood control planning, nothing worthy of a unified program for the river was developed, though many men saw the need for such Valley-wide planning.

Drainage planning is now in about the same condition that flood control work was 75 years ago. Needless to say, land clearing remains largely a matter of private concern. In many instances drainage and clearing have taken place in areas where flood control was inadequate—in backwater areas for example. In still more cases

land clearing has proceeded faster than drainage. Families by the hundreds have had to abandon the land they cleared with great sacrifice because they were located in areas where drainage was not yet sufficiently developed to warrant agriculture.

So commonplace have these experiences become that it is a popular saying that it takes three generations to clear a farm and get it going. It is true enough that efficient drainage systems have seldom been established in the "Delta" until one or two generations cleared the land only to lose it to the newcomers who, having wasted no resources in clearing, could afford to begin a drainage effort. It is easy to see the enormous inefficiency, public and private, in such disorderly methods of land settlement and development. Many county officials now face the difficult task of providing public services to communities of new-ground farmers who have settled in isolated areas which it is doubtful that they will be able to retain. Roads and schools for these communities are, of course, desired and desirable, and in many cases have been provided. Later it has been discovered that they were not permanently needed or should have been located elsewhere.

The careful planning of settlement in the Alluvial Valley would require drastic legislation and many revolutionary changes in the thinking of local groups. Such well-known concepts as those involved in zoning laws have little place in the political thinking now current in the Alluvial Valley. The steps toward a coordinated and somewhat planned reclamation program will be slow, but they are gradually being made. Research which shows the potentialities, in terms of the individual and public economy, of the alluvial soil and the conditions essential to its successful and orderly reclamation, will do much to bring the desired unity of action among reclamation interests.

GUIDEPOSTS IN THE DEVELOPMENT OF A MARKETING PROGRAM*

JOHN D. BLACK

Henry Lee, Professor of Economics, Harvard University

YOU have given me a difficult assignment this morning. But of course it is no more difficult and no different from the assignment that has been given all of us who have now been set to work anew upon the marketing problems facing agriculture and the country. What I am therefore saying is that the marketing problem as a whole is a difficult one. It is more difficult by far than most of us realize.

This can be made clear by stopping to ask ourselves why this assignment has been given to us at this time. The first answer is—for the same reason that marketing was brought to the fore after the first world war. You may remember that the reports of the Commission of Agricultural Enquiry set up at that time were mainly devoted to marketing, and that there followed from it a whole series of federal and state legislative acts. The federal legislation included the acts regulating the grain, cotton and other commodity exchanges and the livestock markets and a long list of other regulatory acts: the Capper-Volstead cooperative marketing act; and the act setting up the Division of Cooperative Marketing in the Bureau of Agricultural Economics, later to be transferred to the Federal Farm Board and finally to the Farm Credit Administration. It was in this period that many of the offices of the state commissioners of markets were created, or marketing divisions of state departments of agriculture, and that most of the states passed new or amended cooperative marketing acts patterned after the Aaron Sapiro model. The crowning development of this period was the passage of the Agricultural Marketing Act setting up the Federal Farm Board in 1929.

* * *

What were all of these measures driving at? What did those who promoted them hope they would accomplish? My answer may startle you a little. The agricultural reformers of those years were not interested in marketing as such, but only in marketing as a means to an end; and that end was higher prices for farm prod-

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ucts—not just a *little* higher farm prices, but *big* increases, enough to bring them back to what was called “fair exchange value,” or “equality of exchange,” and later “parity.” These terms were first used by George Peek, you may well remember, at the big Agricultural Conference which Secretary Henry C. Wallace called in the winter of 1921–22. They became the basic conception of the McNary-Haugen Bills that absorbed most of the effort of the agricultural reformers from then until the Hoover election, and were twice passed by Congress and vetoed by President Coolidge.

That my thesis that the real objective of the reformers of this period was *prices* and not marketing as such, is true is evidenced by the fact that the McNary-Haugen plan was scarcely marketing at all, especially in its earlier phases. It went directly at the matter of raising prices by proposing to force enough exports from this country to raise domestic prices to the full level set by the tariff duties. With tariffs supposedly set at the difference between cost of production at home and abroad, under the flexible provisions of the Tariff Act, this, Mr. Peek reasoned, would assure farmers of cost of production and fair exchange value.

The Sapiro marketing program had this same emphasis on prices. Its essential mechanisms, it soon became evident, were designed to give the farmers control of the whole supply of the product, and enable them to name their prices F.O.B. the farmers' shipping points. The “orderly marketing” that he presented as his central idea meant in action the holding of farm products off the market, even over until later years in the case of non-perishables, so as to raise current prices in the hope that the future would take care of itself. Most people fail to realize how well the Sapiro philosophy was sold to our people in those years. President Coolidge virtually accepted it; it became the basis for all of the legislative proposals put forward by his administration, including the Capper-Williams bill of 1925. Hoover, then Secretary of Commerce, was of course the real author of that bill, and his Agricultural Marketing Act was only a later form of it, made over to make it more acceptable to the big cooperatives. Orderly marketing in this Act was to be achieved by developing “farmer-owned and farmer-controlled cooperative marketing systems,” to which commodity advances were to be made to enable them to hold products off the market, and by setting up “stabilization corporations” to do the same thing in an even larger way.

The difficulty that arose with this program was that *the future did not take care of itself*; the products held off the market accumulated into larger and larger totals and shortly the half-billion dollar revolving fund was all tied up, and President Hoover would not ask for more revolving funds. Moreover, it is to be doubted that funds such as the three or four billions voted the Commodity Credit Corporation ten years later would have saved the situation. The surplus stocks would have piled up to still larger totals, which would have plagued us all during the 1930's.

The Federal Farm Board members, accordingly, and for that matter pretty much the whole farming community, then shifted its thinking to the need for keeping new production from adding more and more to old carryovers. We all began talking about "orderly production" and largely forgot about orderly marketing for a while. A few people had talked about orderly production in the 1920's. They even got Coolidge to put a paragraph about it in his first presidential speech on agriculture at the Chicago International Livestock Show. But Congress had no interest in this approach and would not even hold hearings on the Christgau Bill of 1928, based on this approach. The Agricultural Adjustment Act of 1933, in contrast, contained only a few paragraphs about marketing. It was going to raise prices by production control.

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You may be wondering by this time why I have recited this bit of history with so much care. The simple outstanding fact of the present situation is that the agriculture of the country is now looking forward to a new price decline such as occurred in 1920-21, and again we have acquired a strong emphasis on marketing measures as a way of dealing with it. The main difference is that this time we are anticipating it and beginning to prepare for it, and last time we didn't.

* * *

Why do we turn to marketing measures again? This is indeed an interesting question. One answer now being given is that the Republicans are again in the saddle. But I doubt whether this has any major value as an explanation. No doubt it is to some extent a reaction against New Dealism which in agriculture has come to be associated with production control. A more important connection is that the Republican party is more business-minded than the

Democrats, and the minds of its leaders turn to solutions of problems that can be made within business itself. But it is also highly significant that Congressman Flannagan of the Hope-Flannagan Act, was Democratic Chairman of the House Agricultural Committee, and his Democratic predecessor, Fulmer, was even more convinced that the problems of agriculture had to be solved in large measure through marketing reform. It was while he was still chairman that the special commission was set up to study farm marketing problems. Moreover, the first marketing reform measures were taken in the Democratic administration of Woodrow Wilson.¹ It was under him that Secretary David Houston set up the Office of Rural Organization and Markets in 1913. This later became the Bureau of Markets and was expanded into a national organization employing by 1919 over a thousand workers devoting their time mainly to such marketing services as market grading and inspection and market news. There can be no doubt that the resort to marketing measures as price-raising devices in 1920 and following is due in large part to the strong marketing reform movement that was under way at the time.

And although the emphasis shifted after 1931 to production adjustment, the exponents of marketing reform were by no means entirely relegated to oblivion. In fact, Mr. Peek, as co-administrator of the AAA in its early months, undertook to blow up the paragraphs in the Act on marketing agreements into almost a complete program for the AAA, by trying to get the big tobacco companies and others to enter into agreements with the government to pay parity prices, and it took a reorganization of the AAA to stop him. Presently Section 32, which permitted disposal of surpluses outside the usual channels of trade in the foreign and domestic market, was added to the Act. And although the marketing agreements, or orders as they were called after the Schechter decision, came to be used almost solely in milk markets, they were made, by subsequent court decisions and revisions of the law, into more vigorous instruments of marketing control. Finally, it is safe to say that with the break in farm prices in the fall of 1937, with the parity ratio again falling below 80, the farmers of the country, and their congressional spokesmen, lost faith in production control as a sole

¹ It should be added that although marketing reform was first implemented federally in 1913, it had really begun as part of the Country Life Movement of the later Theodore Roosevelt years in the White House.

device for insuring good prices, and began to revive their old interest in marketing measures. This revival was strengthened by the heavy impact of marketing on them during the war years. Accordingly, our farmers and Congress were ripe for the drive conducted by Hope, Flannagan, the Cotton Cooperative Council and others, out of which came the Hope-Flannagan Act.

* * *

But again we must not make the mistake of thinking that the interest in marketing is in marketing as such. Again the objective is in good prices, and in marketing only as a means to this end. This becomes very clear if one reads the statements made by men like Fulmer and Flannagan in the hearings and congressional record. A letter in my files from Congressman Fulmer indicates clearly the lines of his thinking. As he saw the problem, it is the large profits of the middlemen that keep farm prices low. These profits must be kept from them and given to the farmers. Congressman Flannagan comes from a tobacco growing district of Virginia—nothing more need be said. Men like Fulmer and Flannagan see the problem in these very simple terms: Before the war middlemen agencies, including the railroads and warehousemen, were getting 60 cents out of every dollar paid by the consumer for food. This is altogether too much. We must take some of this away from them and give it to the farmer. Of course the consumer is entitled to some of it too; but that will help the farmer because the consumer will then buy more of his product.

If, therefore, the new movement for the improvement of marketing, in which you in this room and I are a part, is to satisfy its sponsors back on the farms and in Congress, it must give the farmers good prices for their products. Together with such production measures as are still retained, *the methods and procedures for improving marketing that we devise must suffice to keep prices of farm products up to a level that will fairly well satisfy the farmers, after the two-year support program ends in January 1949, as well as this year and next.* If they do not, marketing reform will again take a back seat.

* * *

What are our chances of doing this? Let's first see what the marketing reforms of 1921-40 accomplished. In terms of the farmers' share of the consumers' dollar, the record is far from encourag-

ing—at least superficially. Back in 1913-14-15, the farmers were getting 46 cents of it, and 25 years later in 1938-39-40, only 39 cents of it—a loss of 7 cents! But perhaps the production control of 1933-40 had something to do with this—how about the years before production control? Four of the 7 cents were lost before 1929. In the depression following, the farmers' share fell to as low as 32 cents, but this always happens in depressions. Perhaps there is some encouragement in the fact that the recovery from the depression of the 1930's was 8 cents, and that from the depression of 1920-22 only 2 cents. But the 1930-33 depression was much the deeper of the two.

What the difference between the 8 and the 2 cents principally points to, however, is something much more fundamental. To show any gains at all in the 1920's, the marketing system had to absorb some large wage and rent increases. Urban wages came out of the first world war at twice their prewar level, and building costs almost twice. Freight rates settled down around a half higher than prewar. The general price level in 1928-29 was only around 40 percent above prewar, and most of the costs entering into marketing from 50 to 100 percent higher. Urban wages and rents, in contrast, did not rise anywhere nearly so much coming out of the 1930 depression. Hours of labor, however, were shortened considerably. Not only has the marketing system had to absorb these cost increases since 1913, but also provide more services along with the food distributed—longer hauls from primary producer to consumer as the cities have grown, smaller and more expensive packaging, and the like. No doubt some important gains in real marketing output per worker were achieved between 1920 and 1940; but we have no way of telling how much because these gains were swallowed up and more by higher wages, rents and transport costs.

* * *

Have I not proved by now my original statement that you and I have a very tough assignment? The farmers' share of the consumers' food dollar has been running as high as 55 cents in the last few war and postwar years. We are not expected to keep it at this high level—it is understood that such levels are merely accompaniments of the war. But we are expected to raise it considerably above the 45 cents where it will tend to settle, if we do nothing effective about it, when prices of farm products reach 90 percent of parity.

The question before this and all similar marketing conferences is therefore mainly this: *How is the 45 cents going to be raised to 50 cents, and 55 cents, and even higher, in the next ten years or so, which is what seems to be expected of us by those who have set us at work anew on the marketing problem.*

* * *

If we were instead given a similar assignment in production, we would find the answer vastly easier. We would know pretty well how to go about it. We would work with the actual farmers on their farms and figure out with them ways in which they can increase their yields per acre, per cow, and per hen; ways in which to improve the quality of their pastures and hay so as to reduce feed bills; in which to improve some of their land and make it more productive; in which to control diseases and pests; in which to increase the output per worker, per horse, or per tractor; in which to fit crops and livestock together so as to get a fuller use of their land, labor, and equipment; and so forth and so forth. These are all things that farmers can do within the boundaries of their farms that will lower their costs and increase their net incomes. We do not have all the information needed that would help farmers with these problems, but we probably have more of it than most of them will get around to using in the next ten years.

These same farmers may also have some marketing or near-marketing problems that we know how to help them with—problems of sorting, grading, and packing for the market; of finding the type of product that the market wants and producing to fit this want; of fitting their production program to the seasonal demands and prices in such a way as to get the highest margin of prices over costs; and finally of adjusting their volume of output and combination of products to changing market demands. These problems are generally referred to as problems of adjusting production to the market, and hence as production problems; but surely they call for a good deal of knowledge of marketing and correct understanding of marketing conditions. We may not be too well organized to supply farmers with the information on these subjects that they need; but at least we know the nature of the problem and how to go about getting the information and getting it to them. Give us the personnel for it and we can also handle this part of the job.

Even if these farmers were dairymen selling their own milk at

retail—producer-distributors—we would know pretty well how to go about helping them. Even their distributing problems of keeping down their processing and bottling costs and their wagon costs, and of protecting the quality of their milk, would be pretty well within our reach. We would also work with them on their problem of keeping their production and sales in line with each other over the seasons.

Suppose instead that a group of farmers around a market are organized into a cooperative—how much could we help? How well do we know the problems of such a cooperative? My answer in this case too is that we would be able to help this cooperative a great deal. We would in fact be able to help it about as effectively as we could help a milk producer-distributor. Undoubtedly we would need to make some studies of some of its problems, conduct some market surveys, and improve its market news service; but again we understand how to do jobs of this sort. If the cooperative were a large one serving a wide range of markets, what then? My answer is very little different from the last one. Much more study and survey would be needed, but the methods would be largely the same. All farmer cooperatives have important problems of keeping the production of their members adjusted to the market both as to type or quality and amount, and of membership relations generally; but these also lend themselves to analysis and successful attack.

* * *

Where, then, do our difficulties arise? They arise wherever the production is by one large group of operators acting independently, and the distribution by another group acting independently, *with no integrating mechanism between*. If there is a third group of independent processors in the system, the difficulties are more; and if in addition a group of independent wholesalers, and perhaps still another of brokers or jobbers, the difficulties are still greater. It is this breaking up of the distribution process into separate groups of independently acting operators that presents the main problems *that we do not know how to handle*. It was these problems that all our efforts in the 1920's and 1930's failed to do much with; and it was because of this failure that margins between producers and consumers widened.

Consider some of the things that happen when producers and consumers do get separated by all these intermediaries:

The first is that production, prices and consumption often get badly out of line with each other—as they have in the case of citrus fruits this season. The potato situation that has developed can be attributed in large part to government interference with the normal functioning of prices and the market; but not the citrus situation. In one of the wartime Januaries, I happened to drive past an immense pile of left-over Christmas trees over on the north side, apparently hauled from the North Station freight yards, that were being burned up to get rid of them. The prices had been set so high at the beginning of the season that the buying public had turned against them. That couldn't be blamed on OPA interference. It was free enterprise that did this. Neither can the high prices at which citrus juices were held all last summer and fall. Nor can it be said that such things do not happen in normal peacetime. They have always been happening in the fruit and vegetable markets.

Closely associated with the foregoing, the spreads or margins tend to be the same on big crops as on small crops, and everybody makes more profits out of a big crop than a small crop, except the producers. This keeps retail prices from rising and falling as much as they should, and this keeps consumption from expanding as much as needed to absorb the large crops. Sometimes, as a result, the producers cannot even afford to harvest part of a crop.

A third result is too many operators tend to go into business at the various levels in the marketing process—too many country buyers and country processing plants, too many commission merchants, wholesale receivers, dealers, and jobbers; and most of all too many retailers. Much of our criticism of the present marketing system runs in terms of high costs arising from too many links in the marketing chain. It is not the number of links that increases distribution costs, but the number operating at each of the links. The new type of marketing agent who makes a place for himself in the system needs add nothing to total costs. If there is a case against him, it must be on the grounds of making integration more difficult. But sometimes his particular function is actually one of integration, and he is the most useful of all market operators. The real problem is illustrated by the following: On Concord Avenue, between the Cambridge line and the Common Street railway viaduct, five new fruit and vegetable stores have appeared in the last year. If they all make a living for themselves, they are taking that much business away from other retailers somewhere. These other retailers

can stay in business only by raising margins on the rest of their sales, or getting along with smaller incomes. Most of them will manage to stay in business by a little of both.

The central idea in Congressman Fulmer's marketing philosophy was the high profits made by the middlemen. The same thought runs through much of the discussion of marketing problems by farmers and rural congressmen everywhere. But if the normal earnings of all middlemen were fixed at a level that a representative jury of farmers would accept as reasonable, and the rest of their earnings were distributed as farm product prices, such prices would not be raised more than one or two percent. A few middlemen make very handsome incomes, it is true. But this is a very small part of the distribution problem. *The problem is rather one of having so many trying to make a living as middlemen, and getting away with it just enough to keep them going, and all of the rest of us paying for their keep.*

As a factor in the foregoing is the fourth item in this list, the manner in which competition works under the foregoing circumstances. In place of lowering costs by increasing efficiency, as in manufacturing, the competitive force tends to spend itself in distribution on taking business away from competing firms, with maintaining rival sales organizations, advertising programs, and the like.

Under these circumstances, competition also works in such a way as to expand the services that go with the products much beyond what the buying public would pay for if it was in a position to decide. *Minorities rule in such decisions.* If a small fraction of the families in a community, *usually of the more well-to-do families*, want some extra services, the usual result is that all the merchants before long are providing them, and all the rest of the families are having to pay for them as additions to prices. *Thus it frequently turn out that the more well-to-do minority is able to force the rest of the community to pay for the services that this well-to-do minority wants, but that the rest cannot afford.*

* * *

The approach to this problem that the extension worker naturally takes is to try to make the individual marketing business unit more efficient. This is the approach that has been effective in production. This was the approach which we were following when I was at the University of Minnesota in 1918-27. Not only did we use it in our

extension work in our own state, but we trained young men to use this method and sent them out into other states—into Wisconsin, Ohio, Indiana, Virginia, Kentucky, Illinois, Iowa, Missouri, North and South Dakota, Montana, etc. It was fairly effective with the cooperatives, but if so, only because it enabled the cooperatives to outdo their private competitors, take business away from them, force some of them out of business, and the rest to operate much like the cooperatives. Attempts to help private firms by these methods, however, were mostly dismal failures.

The schools of business about that time began setting up their so-called "bureaus of business research," which sought to help individual private firms to become more efficient. Eventually most of the schools of business had such bureaus. My own judgment is that they have reduced distribution costs very little. They undoubtedly have helped individual firms to operate on lower margins, if need be, and otherwise to increase their profits; but not usually have they lowered the general levels of operating margins in communities. Where they have succeeded in this, it has been because the more efficient firms have forced part of the less efficient to quit; and kept new inefficient ones from getting started. The usual situation is that enough new ones are always starting to keep the overall efficiency from rising.

The title suggested by the program-makers for this paper has the word *guideposts* in it. I hope that you have not lost yourself in the wilderness looking for them in what has gone before. Here, at least, is one guidepost which I shall set out where all can see it. The sign on this guidepost points in the other direction—away from relying much upon the old types of indiscriminate research and extension work with individual marketing business units, even largely upon such work with large numbers of small cooperatives.

The alternative approach now needed is in terms of *marketing systems as wholes* and trying to find ways of organizing them on more efficient lines. I shall concentrate most of the rest of this paper on setting up one large guidepost, with a great big sign on it pointing in a very definite direction. That sign is this: *Concentrate Your Effort on Better Integration of Marketing*. This means trying to get the various intermediaries in the marketing process to work together toward the common end of moving farm products through the market as smoothly and regularly as possible, with no unnecessary sales effort, with as few persons employed in it as possible, so as to keep costs at a minimum. Not only must the work of the

middlemen be integrated to these ends, but that of the producers and the consumers, so that what consumers want and will buy and what farmers produce fit together as nearly as possible, so that few surpluses pile up and consumers are deprived as little as possible of what they need or want because supplies are temporarily short and prices too high. If unusually good growing conditions unavoidably make large supplies, an integrated marketing system will work so as to move these supplies through to consumers at prices low enough so that they can afford to buy them. Or if it fails to do this, special pricing will be arranged that will accomplish it.

The simplest way to accomplish this integration is to set up large farmer cooperatives that handle the products all the way from the farm to the consumer; or, alternatively, large consumer cooperatives that do the same thing from the consumer end; or middleman cooperatives that operate along the same lines but from somewhere in the middle. These will put the whole marketing process under one management which is thus in a position to integrate all the steps in it and make all of them efficient. It would not be necessary to have all farm products handled in this way—if as much as a half or two-thirds of them were, this would set the pattern for the rest and the rest would have to operate in much the same way.

Practically, it will not be feasible to set up many cooperatives that take in the *whole* of the marketing process for a product. They may go only so far as the retailer, for example. But if they do, then cooperative retailing, or its equivalent, will be needed; and arrangements will need to be worked out between them that will integrate the two sets of cooperatives. Thus if a cooperative store system reaches into the wholesale market to do its buying, arrangements will need to be made for its integration with farmers' cooperatives that reach from the farm out to the wholesale market.

You in this room scarcely need to be told that we have cooperatives that fit into such a pattern. Several could be named that start at the farm end and do a good job of integrating marketing operations clear through to the auction markets or jobbers. Some operating in the central markets have worked out satisfactory integration with local cooperatives. The cooperatives handling farm supplies have given us a good demonstration of cooperation integrating from the buying end, but we have very little in this country, in contrast with some countries of Europe, of integration of the marketing of farm products back from the final consumer.

One way of achieving much integration in our marketing of farm

products would therefore be to take the existing cooperatives, fit them together, and fill in the gaps with new cooperatives, until we have a fully integrated marketing system. There would of course be room for proprietary enterprise everywhere in the system. But it would need to be as efficient as the cooperative enterprise. And to be so, it would need either to integrate its own operations, or to integrate these with the cooperative system.

Given such a procedure for attaining integration, the public agencies working in marketing would find themselves working with the cooperatives on their problems of grading and standardization, packing, processing, storing, freezing, adjusting the flow of the product to the market, adjusting production to the market, increasing the efficiency of use of labor and equipment and the like; and along similar lines with proprietary enterprises.

But although the approach by expanding cooperation is a simple and logical method for attaining integration, it is by no means the only way. Private enterprise can integrate too. The chain stores have given us a good demonstration of this. And one can easily name other examples of it in the farm product and food field. These have possibilities of doing as good a job of integration as the cooperatives. It is to be hoped that private enterprise will make the utmost of its opportunities along these lines, and will contribute its full share to the successful encompassment of this problem.

Private enterprise has some difficulties peculiar to it in such integration. The first one is that large proprietary firms are susceptible to monopolistic tendencies, such as exhibited in the form of price leadership, resale price maintenance, local price discrimination and the like; and even if they do not fall prey to such tendencies, the buying public tends to suspect them of it. We know by this time that cooperatives can acquire monopolistic behavior traits too; but they are less likely to do so. Some protection of the public has proved to be necessary even against large cooperatives—much more will be needed if a large integration under private management develops, unless private management will find ways of operating that protects it from these tendencies or accusations of the same. This would mean more government regulation; and we do not like such regulation. My own judgment is that private management can develop ways of protecting itself adequately from these tendencies; and that it is highly important that it do so.

Another difficulty is illustrated by our experience with the chain

stores. They introduced some important economies and efficiencies at the start. The savings, however, went too largely into profits and not enough into lower consumer prices. As a result, competing chain store systems developed everywhere, and forms of competitive expenditures developed, even including restoration in some cases of the services of the independent stores, and the decline in costs was not only checked, but in general reversed. The super-markets may be having a similar history.

The chain stores had the advantage at the start not only of an integrated system of buying and selling, but of supplying to the masses of workingmen's families only those services along with the groceries that these families could afford to pay for. The chain stores tended presently to lose sight of this second advantage, and to want to sell more services with their goods as so to attract a larger number of customers, and this raised their costs.

* * *

Something more specific needs to be said about the integration of production and consumption. A perfectly functioning market would take care of this completely. Because it does not, we have "surpluses" of all kinds. What is a *surplus*? It is simply a quantity of a product which, for any reason whatever, fails to move through the channels of trade. In our markets as they are, several kinds of surpluses arise—*seasonal*, as of milk in the summer months; *weather*, arising from unexpectedly large crops; *cyclical*, arising from the decline of consumption in business depressions; and *chronic*, arising from over-expansion of and over-investment in some line of production, with consequent persistence in producing more than the market will take. Some major developments in economic organization and functioning are going to be needed to prevent such surpluses, or take care of them if and when they arise. No doubt government will need to take a hand in these developments. Let us hope that the problem can be met without compulsory production or marketing quotas, export restrictions and the like.

* * *

In the years not far ahead, we shall have not only all the kinds of surpluses that we have just described, but in addition a general over-all surplus of farm products arising from the decline of exports with recovery from the war in Europe. To handle these adequately will call for integration, *plus* disposal outside the usual channels of

trade through such forms of supplementary food distribution as school feeding, distribution among needy mothers and children, institutional feeding, in-plant feeding, and stamp plans of one form or another. All of these will be much more effective if the production and the consumption can be fitted together, with the consumption in the main directed especially toward dairy, poultry and other livestock products that use much land and labor per food unit; also if the movement of the food after it is produced can be rationalized. Analyses which some of us have been making indicate that as little as a 3-percent increase in food consumption induced in this way will cause a 10-percent increase in food prices. Once we have developed this form of supplementary food distribution we shall find that we wish to keep them for use in handling the types of surpluses that arise in more normal times, and in improving the health of our people at the same time.

* * *

Let no one understand from the foregoing analysis of the marketing problem that efforts directed toward helping farmers with grading and standardization of their products are not highly worth while. These are in fact a necessary part of integration. So are good market inspection and market news services.

* * *

In the burst of emphasis on marketing following World War I, many studies were made of marketing costs. They helped virtually none. Will marketing costs studies help now? Only if they point the way toward reduction of costs of some operation of a cooperative or its equivalent; or toward some achievement in integration. Costs in marketing, it must always be remembered, reflect prices as much as prices reflect costs. The surest way of raising the average cost of distributing milk in a city, it has been demonstrated, is to raise the distributor's margin by one cent per quart. If something doesn't happen quickly to reduce present retail food prices and margins, we will be saddled with a higher level of retail costs that not even a major depression will wholly do away with.


* * *

One could outline other types of efforts that will be important aids toward making marketing more efficient. All of them together, however, will add up to little unless they contribute importantly

to better integration. If we are to achieve for the farmer in the next ten years the goal of 50 cents, or 55 cents, or even more, out of the consumers' food dollar—and this we must do or the new drive on marketing we are now starting will go the way of the last—we can do it only by two developments—much better integration in our marketing system, and effective forms of supplementary food distribution. It is these that should receive our major attention now.

In conclusion, I must warn you that developments of these two types call for a higher order of economic insight and analysis than marketing problems have too often received; and that the translating into action of the findings of such analysis calls for a higher order of economic statesmanship than the marketing extensionists of the past, agricultural or other, have often possessed.

RESEARCH IN ECONOMICS OF FARM PRODUCTION

WALTER W. WILCOX* 
University of Wisconsin

FARM Management workers have benefited from time to time by professional papers and committee reports on research methods.¹ Current developments in the availability of secondary data and a continually widening demand for facts relating to the economics of farm production suggest the value of another paper in this field. Fully as important, recent developments in economic theory and statistics as yet have had little application in farm management research.

As well trained young men become available again in the next few years, increased emphasis must be placed on improvement in research methods and on more critical selection of research projects. New economic production problems are arising as a result of changes in technology and readjustments from war time conditions. With so many economic problems unanswered, we can ill afford to continue to use a large part of our farm management research resources "to prove that George Warren was right, back in 1911."²

Current Demand for Farm Management Data

In contrast to the early days in farm management research when interest centered primarily on the factors which influence financial success in farming, these relationships have now been well established. Today the influence of high crop yields, efficient livestock, size of business and power and labor costs on net farm income are well known. The influence of the productivity class of the land also

* The author is especially indebted to Earl O. Heady of Iowa State College, F. F. Hill of Cornell University and to a number of colleagues in several States and the Bureau of Agricultural Economics for reading an earlier draft and offering criticisms and suggestions which have been incorporated in this paper.

¹ The more important of these are Social Science Research Bulletins 13 and 52, *Scope and Method in Farm Management Research* and *Farm Management Research 1940-41*; *Theory of the Farm and Farm Management Research*, T. W. Schultz, this JOURNAL, August, 1939, Sherman E. Johnson, *Recent Trends in Farm Management*, U.S.D.A., B.A.E. mimeo. March, 1941; *Forty Years of Farm Cost Accounting Records*, *Forty Years of Farm Management Surveys* and *Thirty Years of Farm Financial and Production Records in Illinois* by Andrew Boss, S. W. Warren and M. L. Mosher, this JOURNAL, February, 1945. In this paper the terms "farm management" and "economics of farm production" are used interchangeably.

² Several workers, some within the field of farm management and some in related fields, in recent months have expressed regret to the writer that such a large proportion of the farm management research merely proves the correctness of the farm management principles developed by Professor George F. Warren of Cornell University.

is well established. Each year, however, thousands of farm records continue to be analyzed from this point of view to obtain up-to-date extension and resident teaching materials.

In addition to this demand for up-to-date farm management extension materials, farmers, extension specialists and farm leaders are continually seeking information on the economy of new production techniques and new resource combinations. Work of this character could easily utilize more men than are currently engaged in farm management research.

But farm leaders today have still another group of questions that only farm management data and analyses can answer. These refer to the effect on the use of agricultural resources of alternative government policies in the field of farm price supports, crop insurance, production controls, soil conservation and international trade. Another group of questions come from consumers and representatives of other occupational groups whose interests center primarily on production costs and incomes received by farm families in relation to their food prices and their own incomes.

Secondary Data Now Available for Descriptive Studies

Farm management research methods need a critical examination and reorientation today primarily because of this widening demand for data on the economics of farm production and farm family incomes. But fully as important, improvements and additions to the secondary data available permit a great economy of effort and increase in scope of the research results with the available farm management personnel.

Improvements in the agricultural census and in the availability of data on individual farms permits special farm classifications of census data never before available. Cooperation between the Bureau of Agricultural Economics and the Bureau of the Census has now reached the stage that the essential descriptive information on number of farms of particular sizes and types in an area and the average acres of crops, numbers of livestock, value of products sold and production expenses can be obtained from the 1945 census.³ The utilization of such data permits an orientation of spe-

³ Professor Hill of Cornell University points out that the usefulness of census data for descriptive studies in New York are limited because of the need for segregating hill and valley farms in most areas of the state. At the present time, the data obtained on each individual farm by the census are not sufficiently comprehensive to permit such a classification. This shortcoming of census data is equally important in a number of other sections of the United States.

cial researches undertaken in a way which results in a much wider and more accurate application of the conclusions than has been possible in the past. In fact, the general orientation of each particular group of farms studied with respect to a generally accepted scheme of farm classification would meet the criticism of farm management studies made by Schultz in 1939 when he said "... they afford no way of relating the actions taken within the farm to that of the economy as a whole."⁴

One of the major proposals of this paper grows out of this availability of secondary data and experience to date in its use in the farm management field. The writer proposes that each state should analyze its farm management projects to determine the extent to which each one is aimed at description and the extent to which each is aimed at analyses of specific problem situations. When this is done consider the extent to which the needs for descriptive information could be met by the use of secondary data.⁵

Census data could be analyzed on a large scale to provide more adequate descriptions of the farming prevailing in a given area. It is doubtful, however, whether additional descriptive studies utilizing only data available in the census meets the needs of people interested in the economics of farm production. Rather, census data may be used as the basis for determining the average farm organization for particular types and sizes of farms to which additional farm management information may be related. Utilizing techniques already worked out in the BAE and in some states, a body of information on production, income, and expense on farms of specified types and sizes can be accumulated at relatively low cost.

Studies of this type, which have been under way in the Division of Farm Management and Costs for several years, are especially useful in providing information on current enterprise organization income levels of farm families and trends in costs, labor efficiency, and levels of living on particular kinds of farms.⁶ These annual

⁴ *Op. cit.*, Schultz, p. 570.

⁵ A farm management extension specialist, in commenting on an earlier draft of this paper, said, "In extension we could use to advantage more good descriptive information as well as better analyses . . . I would like to see this [descriptive] work expanded to give us better descriptions of different types of farms with perhaps two or three size classifications. If this could be done, I think Extension could discontinue much of the work of making annual farm record summaries which at present require far too much of our farm management extension workers time."

⁶ The most recent summary of this work is found in the processed BAE report F.M. 55, *Typical Family-Operated Farms, 1930-45—adjustments, costs and returns, April 1946*. A similar cooperative study between the BAE and a state is sum-

farm budgets prepared for farms of specified sizes and types may also be used in forward-looking analyses, testing out desirable production adjustments in view of prospective price and technological changes. Alternative government price support, marketing allotment or production adjustment programs might also be tested out with respect to their adaptability to these specific farming situations. The procedure in such studies utilizes secondary data to the maximum and draws on all relevant farm management analyses for information on labor, power, and other physical requirements for specific enterprises on the group of farms under study.

The expansion of enumerative surveys by the Bureau of Agricultural Economics opens up further possibilities for keeping up to date on trends in resource use, farm practices, costs, production, income, and size of farm in the larger geographic areas with a minimum of additional special farm management studies.⁷ Enumerative surveys also offer an opportunity for obtaining basic data on specific enterprises in particular kinds of farming, such as soybeans on livestock farms. All too frequently farm management workers look upon their job entirely in terms of gathering and analyzing their own primary data. This situation must be corrected in view of the large amount of excellent secondary data now becoming available. Farm management workers could well give more time and thought to the improvement and expansion of enumerative surveys as a means of obtaining more adequate samples of much basic farm management data.

A Suggested Research Program

The content of a well rounded research program was outlined in *Social Science Research Bulletin* 52. In this publication four major areas were outlined: (1) A description of prevailing farming sys-

marized in *Economic Information for Wisconsin Farmers*, Jan.-Feb. 1945, under the title, "Production, Income and Expense on Typical Farms in Wisconsin, 1935-43."

⁷ The enumerative sampling work of the BAE started with 2800 farms in 1946. The extent to which this work will be expanded depends on administrative problems encountered in carrying on the field work and in summarizing and interpreting the data and on the Congressional appropriation of funds for such work. In January, 1947, 16,000 farms were enumerated. The entire United States sample is carefully selected by objective sampling methods. Each farm or a sub-sample will be visited 4 times during the year, when present plans materialize. The schedules contain the usual questions asked by the Crop and Livestock Reporting Service and additional information on expenses, income, farm practices, farm population, household facilities, and other data needed by the research Divisions of the BAE.

tems and measurement of current changes in farming, (2) Detailed analyses of farm management problems by size, type, location and other factors, (3) Economic effects of institutional and technological changes on agricultural production, (4) Explorations in new fields and development of research methodology.

Few states have adequate resources to carry on a substantial research program in all these areas at the same time. It is not the purpose of this paper to attempt a restatement of the content of a comprehensive program for states with ample research budgets. It is rather to point out what appears to be the more essential minimum lines of work within states having limited budgets and possible areas of cooperation between state and BAE personnel.

Taking into account the three factors, (1) the existing body of farm management knowledge (2) the availability of secondary data and (3) the wide general interest in the economics of farm production, the writer suggests the following minimum state farm management research program:

1. Studies of costs and returns on important sizes and types of farms within the state.
2. A limited number of farm accounts or other records for use in determining why some farmers make higher incomes than others, and practices followed by the more progressive farmers.
3. Analytical studies of problem situations.

Studies of costs and returns on the important sizes and types of farms should have a high priority in every state. In the period of readjustment in farm prices, production, and costs which is ahead, there will be a great deal of interest in adjustments made in these items on the more important sizes and types of farms in each state. Information of this nature for the more important kinds of farming in each state would be highly useful in supplementing BAE estimates of gross farm income and production expenses on a state and national basis. Such data could also be used for teaching and other general utility purposes for which accounting data or old surveys are utilized at the present time. These studies would yield data of general descriptive character more generally useful than farm record summaries.

Analyses of why some farmers made higher incomes than others and of the practices of the higher income farmers would still require farm accounts or some similar records. For these and related pur-

poses it appears desirable to use a small part of even a limited research budget to join with the Extension Service and a cooperating group of farmers in the summary and analysis of their annual accounts. In order that such resources yield the greatest return, it would be desirable to limit the use of research funds to situations where groups of farmers are sufficiently interested to hire a field man who will help them in keeping and interpreting complete and accurate records and in improving their farming operations. Some of the greatest research values will be found in the information obtained informally from the better farmers in the state who will be members of such a cooperative group. In addition to the usual extension uses of these account summaries they should be used by the research staff as a source of case studies showing the results of particular enterprise combinations and production practices.

In areas where farm management associations with substantial membership fees cannot be organized because of the low level of farm family incomes, periodic surveys will be needed. If the descriptive information on such areas is reasonably adequate, these surveys might well be limited to a study of the organization and practices on the more successful and progressive farmers in the area.

These two types of projects might well be the continuing work in each state which would provide a fund of current farm management information with respect to the typical or average and the better than average farming situation. While it is impossible to set up desirable budgets in the abstract, it is indeed a "poor" state which must use over half its farm management resources in providing this necessary up-to-date descriptive teaching material.

With the facilities which the BAE have for working with census data and for integrating the studies in areas which cross state boundary lines, each state could well have a major cooperative project with the BAE for studying costs and returns on specific sizes and types of farms. To the extent that BAE resources are available for work with states such projects might well have priority until an adequate job is completed in each state.

Field studies are needed in many areas to obtain input-output data applicable to specific farm situations. They also are needed to check the reliability of estimates made from secondary data. For the most part, however, the studies of costs and returns on specific sizes and types of farms can be completed from secondary

data now available and the information on what the better framers are doing can be obtained as a byproduct of Extension farm account projects.

In the midwest states at least, there is more danger of having too many rather than too few farm account records to summarize and study for research purposes.⁸ The writer looks with favor on the organization of Farm Management Associations which will pay a large part of the cost of summarizing and analyzing the annual accounting records. Under such conditions an association including a number of the better farmers in each major type of farming area would appear to be a desirable goal. This is particularly true when one considers the Extension as well as the research benefits from these associations. It is hoped that as farming continues to become more business-like that large numbers of these farm management associations will be organized on a fully self-supporting financial basis.

The third line of work, studies of problem situations, is particularly in need of expansion. If workers in the field of farm management or economics of farm production are to contribute new information in contrast to restating established generalizations in a different setting, they must undertake new analytical studies of problem situations. Secondary data can and should be utilized to provide the general background for these analytical studies. But for the most part, the research worker will require additional primary data bearing directly on his problem. These data must then be analyzed with the use of up-to-date statistical techniques. Each state might well study its farm management research program to determine how many of the projects can be classified under this heading of analysis of specific problem situations. Recognizing that an adequate descriptive background is essential for teaching and general utilitarian purposes, the higher the proportion of the budget devoted to well defined analytical studies, the higher rating the total research program merits.

The problems which form the subject matter of these analytical

⁸ This statement is based on the observation that few groups of farm account records are sufficiently detailed and representative for most investigations of problem situations. Too much research time is spent computing the same averages year after year from farm accounts. The writer is not in a position to pass judgment on the desirable number of farm accounts in a farm management extension program.

studies will vary by geographic areas and from year to year. In the South at the present time problems in the field of developing farm organizations to utilize effectively the new machinery and other improved technology available are considered of paramount importance. Resource combination problems growing out of the adoption of soil conservation practices are of primary importance in many areas. Changes in demand associated with postwar readjustments may create the critical problem situations in other cases.

Weaknesses in Current Research Methods

Farm income results from a combination of such a large number of variables that few economic studies of farm production permit valid generalizations for specific situations or geographic areas. All too often the results of a study are reported as "A Farm Management Study in Brown County, 1946" or some similar title. The data analyzed are those furnished by a group of farmers interested in keeping accounts or survey data for a township or some other community which in the judgment of the investigators is representative of the county or some other geographic area. *Because of the heterogeneity among the farms and the number of variables affecting net farm income*, the study seldom goes farther than to show by means of cross classification the relation between labor income and size of business, crop yields, etc.

Enterprise studies all too often do not go beyond the point of computing averages for the entire group of farms studied or the average physical requirements for the group having the highest costs in contrast to the average for those having the lowest costs. Most studies of specific enterprises using farm account records, such as fattening beef cattle, group the records on the basis of results obtained and show the amount of different kinds of feed fed and other cost items for the group with the highest and the group with the lowest return over feed cost per hundred pounds or per animal. Even in this small part of the total farming operation, the limited number of records available and the large number of variables usually prevent quantitative generalizations regarding the relationships involved. The data merely show that the men who made the greatest profits on their fattening cattle obtained the greatest gains per 100 pounds of feed fed and similar relationships. *The question of the critical differences in resource combinations and management*

practices which led to these widely different results is seldom, if ever, answered with statistical evidence.

The sorting of enterprise data on the basis of returns over the more important costs has been found to be a very useful extension teaching device. Its usefulness, however, in large part results from the use of these comparisons by the farmer and the fieldman or Extension Specialist working with him to determine where additional study is desirable. If the farmer finds he is in the low group in the comparison the specialist discusses with him possible changes in practices in the light of results obtained in various trials at the agricultural experiment stations. Practices followed by the farmers who obtained the highest returns on the enterprise, may be suggested by the specialist who knows all the farmers included in the study quite intimately.

Difficulties in establishing quantitative relationships under farm conditions arise in large part from the number of variables involved in most studies undertaken. Some research workers have advocated the use of block samples "limited to an area which is homogeneous as to soil, climate, topography, and markets," in the study of relationships.⁹ As a matter of fact, however, there are few blocks of land in the United States as large as a township, which are sufficiently homogeneous in soils, topography, farm organization and farm size to permit quantitative economic generalizations regarding resource use relationships. Usually these intensive farm management studies of selected geographic areas or blocks result in a restatement of generally accepted generalizations for this particular block—not in new generalizations with respect to quantitative relationships which are true for some larger universe.

Warren is correct in stressing the difference in the sampling problem in descriptive or "counting" in contrast to analytical studies. While the two types of studies can be combined, a sample drawn for one purpose may be an inefficient, if not an inadequate, sample for the other purpose. It is a rather common misconception that objective sampling for studies of efficiency relationships in farm production is unimportant. Few efficiency studies result in new quantitative generalizations primarily because the project was not planned on an adequate statistical basis. In the words of a reviewer of an earlier draft of this paper, "Warren was correct in pointing

⁹ S. W. Warren, *Forty Years of Farm Management Surveys*, this JOURNAL, Feb. 1946, pp. 21-22.

out that one may need different samples for mere counting of an item and for determining relationships. Yet to get the correct relationship, one still needs an *unbiased* sample over the whole range of the data." It is obvious that one cannot be sure that a few geographic blocks selected by the investigator will be such a sample.¹⁰

Steps in Improved Methodology

Farm Management workers could save a great deal of time and expense if they would state their research problems in terms of questions within specific frames of reference, whether they are internal farm organization problems growing out of technological or price changes or the measurement of the effect of government policies on the use of resources. When the questions are carefully worked out, a review should be made of the technical information already available bearing on the answers to these questions. On the basis of existing information, hypotheses can be formulated with respect to expected technical relationships in the problem situation to be investigated.¹¹

A second step involves reviewing the economic principles and empirical studies which apply to this particular problem situation. What hypotheses of economic relationships appear most promising in view of existing economic theory and previous studies of similar situations? When these two steps have been completed, we are ready for the third step. This consists of defining the limits of the universe to be studied and the determination of the size and a feasible method of obtaining an objective sample.

Analytical studies of problem situations designed to establish new quantitative generalizations between resource uses on individual farms and costs or income require some form of farm classification. Area classifications while useful for some purposes usually are far too heterogeneous to permit meaningful generalizations for all the farms contained within them. An important aspect of the research is the determination of the particular classification of farms which is most useful in both arriving at and interpreting the results of the study. While complete uniformity in criteria used in classify-

¹⁰ Unless, of course, one only wishes to generalize for those particular geographic blocks.

¹¹ Conversely, statistical results obtained should be tested against available knowledge of technical relationships and their accuracy rigorously verified if they contradict experimental results. (Some recent publications apparently have not done this.)

ing farms cannot be expected among the different investigators, adherence to a general basic plan of farm classification will add greatly to usefulness of the results.

The preparation and testing of the schedule of questions to be asked and the selection of the statistical methods to be used in analyzing the data also are an essential part of the third step. Most recent texts on statistical methods give an adequate treatment of the appropriate procedures for preparing and testing questionnaires. If before field work is undertaken, research workers will go through the three steps mentioned above, there is a high probability that the research undertaking will be successful.

All Studies Need Not Be Statistical

Thus far the discussion has assumed that all farm management research involves statistical analysis. In farm management a high proportion of the research must be quantitative in character. But further work is needed in examining and restating economic theory as it relates to the firm and to cost curves to make it more useful in farm management analysis. Current studies at Wisconsin raise doubts about a number of the basic assumptions underlying the average cost and marginal cost analyses as applied to the usual farm management decisions.

A further qualification is pertinent. Well trained and experienced research men may be able to analyze problem situations in non-quantitative terms and arrive at valid and exceedingly useful conclusions even though they have no statistical proof of their conclusions. They may then present case studies or sample data to illustrate their conclusions.¹² This is a highly useful type of research if the investigator exercises sufficient caution to avoid incorrect conclusions. But to be useful the conclusions must be stated in sufficiently specific terms to permit and facilitate their application (a characteristic often found lacking).

Farm Management men also have a large field of service in working with research workers in the technical fields, assisting them in

¹² A large number of the farm management bulletins present tabular data to show (or prove) the existence of relationships when the application of appropriate statistical tests would show there was no statistically valid basis for such inference. At most the data could only be used to illustrate the relation if the investigator had other means of convincing the reader that such a relation between the two variables did in fact exist. In such cases the reader should be told that the data are presented for illustrative purposes only.

planning and analyzing their experiments to obtain results which can be interpreted in economic terms. Continued use of budget analyses in forward-looking studies of new resource combinations involving technological processes not yet adopted by farmers is another valuable type of research.

There no doubt are other aspects of the field of Farm Management research which have been slighted in this short discussion. This paper has served its function, however, if it has stimulated some thinking and planning with respect to improvement in research methods. Farm Management workers often lament the large gap which exists between the level of efficiency possible on farms and common farm practices. The gap is just as wide in our own profession.

If we will use the secondary data now becoming available in increasing quantities; if we segregate more sharply our descriptive and our analytical studies; if we increase the proportion of our resources utilized for analyses of problem situations; and if we apply the more recent developments in economic theory and statistics in the analysis of these problems, great progress can be made in farm management research.

HOW EFFICIENT IS AMERICAN AGRICULTURE?*

THEODORE W. SCHULTZ

The University of Chicago

AS MORE attention is given to high policy for agriculture one can detect a growing awareness of two major economic difficulties that affect agriculture adversely, namely its inefficiency in a long run setting and its instability in a short run context.¹ This approach is clearly evident in the report of the "Colmer Committee" in its *Post-War Agricultural Policies* (House Report No. 2728, 79th Congress, 2d Session), the Land-Grant report on *Post-War Agricultural Policy* and in recent statements issued by the U. S. Department of Agriculture. As yet, however, neither of these problems has been adequately formulated. The reasons are several, but chief among them is the fact that each has been viewed mainly as a series of particular maladjustments within agriculture and not as general economic problems that have their origin primarily in the economic instability and development of the non-agricultural sectors of the economy.² Moreover little is known about the magnitudes of either the allocative inefficiency or the aggregate instability of agriculture. Nor has anyone undertaken a straightforward inquiry to determine: How efficient and how stable is agriculture? Economic thinking on these issues has not gotten down to anything approaching economic characteristics and basic causes. This is clearly evident when it comes to the existing economic inefficiency of agriculture where the stock remedy consists of more technological gadgets and better farm management. A more serious analytical obstacle arises from the fact that the more articulate sectors of agriculture—those that actually predominate in agricultural economics—are strongly wedded to the erroneous presupposition that

* In revising this paper I have benefited from the critical comments of Louis J. Ducoff, Ronald W. Jones, and Glen T. Barton.

¹ This leaves aside a third major problem often in the foreground also, that is the inequality of incomes.

² *Agriculture in an Unstable Economy*, McGraw-Hill, 1945, is based on this formulation, J. S. Davis' review of my book in *Review of Economic Statistics*, May, 1947, represents, so I interpret it, a comprehensive dissent from this identification of two primary economic difficulties confronting American agriculture. My note published along with Davis' review is an attempt to state concisely the differences in presuppositions to help clarify the basic issues in the belief that this will facilitate further analytical work on these matters by others.

American agriculture is by and large quite efficient.³ This belief blinds the great majority of professional workers. Should not this belief be challenged?

The main thesis of this paper may be put as follows: *The agriculture of the United States is far from efficient when tested against economic criteria.* It will suffice to demonstrate the extent of this inefficiency, leaving the matter of underlying causes for another occasion and for others to untangle. To further indicate the limits of this paper it may be noted that it is merely part of a more extensive inquiry into inefficiency and instability affecting agriculture.⁴

I

The belief is widely held that farming in the United States has no peer. It has all the necessary earmarks—it is apparently advanced, modern and progressive. It has tractors, combines and cornpickers; hybrid corn, disease resistant wheat and new varieties of cotton; artificial insemination of cattle, cross breeding of hogs, and in terms of nutrition our livestock are better fed than are our people. With these advances, and many more, American agriculture, it is said, leads them all. It is out ahead presumably because of the flood of new methods and improved techniques developed by our Agricultural Experiment Stations and disseminated by the far-flung Agricultural Extension Services. If this is not enough to make American agriculture efficient, all that can possibly be lacking is the more general adoption of these techniques and methods. When that is achieved, so the prevailing belief goes, American agriculture cannot be other than highly efficient; more efficient than farmers elsewhere and fully as efficient as producers in other fields. This point of view has been further strengthened during the war just passed by the remarkable capacity of farmers to produce more food and feed despite wartime difficulties and a large shrinkage in the farm population.

³ There is of course an easy way out and that is to ascribe enough non-monetary utility to each farming area to always compensate exactly for any difference in the value productivity between the human effort employed in a given farming area compared to that of other occupations. The procedure is really very simple: if (a million) farm families product only \$600 per year in terms of products consumed, traded, and marketed and the "equilibrium" value productivity for comparable human effort elsewhere in our economy is \$2,000 annually, simply add in \$1,400 for these intangibles and a fine balance is struck "proving" that a benevolent factor equilibrium between agriculture and other sectors of the economy prevails! If any methodological doubts should arise, it is of course convenient to say that no one can tell how much these non-monetary utilities are worth.

⁴ Growing out of the research planning of a Faculty Exploratory Group at the University of Chicago.

The achievements in production of agriculture notwithstanding, and though students from all parts of the world come to this country to study and benefit from our accomplishments, farming in the United States taken as a whole does not come anywhere near meeting the standard of efficiency set by the American economy.⁵ Instead it has all the earmarks of being highly inefficient, falling far behind most other major industries. How much inefficiency has become embedded in agriculture is a disputed point. Few agricultural economists, however, would contend for even a moment that a full-time family farm, under pre-war price and cost conditions, producing a value of product of less than \$600 was anything other than inefficient. Yet the 1940 census identified well over a million such farms.⁶

A few studies are available that provide a clew to the existing situation. Before turning to these, however, it should be noted that regardless of the state of the arts an optimum utilization of resources is a desired goal.⁷ Waste, consisting chiefly of human effort

⁵ The concept of efficiency is applicable to different input-output relationships depending upon the conditions set by the problem. In a certain "technical" setting it may be employed to determine, for example, how to produce the most corn on an *acre of land* regardless of the cost of the inputs, the objective being to find the combination of inputs that produce the largest yield of corn and this would represent "maximum efficiency" in such a context. In farm management it may be used to determine, for instance, how to produce the most *profit on a farm* with the assets at the disposal of the farmer and with the prices of inputs and outputs given. The combination of resources that would achieve this goal would, under given conditions, represent "maximum efficiency." Still another formulation, the one underlying this paper, has as its goal the task of determining how to produce (achieve) the largest *social product in the economy* as a whole given the existing cost and utility patterns. When all resources in the economy are allocated so that no further gain can be achieved by an additional transfer of a factor or product from one use to another use, "maximum economic efficiency" is achieved. This would represent the *ideal*, the general equilibrium of economic analysis.

Throughout this paper the concepts of "efficiency" and "inefficiency" are in terms of economy, namely the third of these formulations thus going beyond farm management where prices of inputs and outputs are taken as given. The main focus of this paper is upon *factor disequilibria* that are causing widespread economic inefficiency in the American economy and affecting adversely especially farming in the United States.

⁶ This figure presumably leaves aside part-time farms, rural residences and semi-retired operators.

⁷ Alec L. Macfie in *Economic Efficiency and Social Welfare*, Oxford University Press, 1943, presses the argument that efficiency is not merely an instrumental value but that it has the main characteristics of moral value. He starts by identifying efficiency with economy, "... if we develop economy into a realistic definition we find that it is only another word for efficiency. Economy in a negative sense is the process of avoiding waste. More positively, it is the process of making the most out of scarce resources" (p. 105). Then, after putting efficiency to a series of tests to see if it has the characteristic of other primary moral values, he concludes his Chapter VI, "We can and ought to consider efficiency in the same way, with the

in the case of agriculture, should be avoided whether the existing technology is primitive or highly developed. Moreover, it is not only possible but necessary to abstract from both the state of the arts and the state of management in order to get at those aspects of economic efficiency under discussion. To put this another way, given the existing technology and management, are we achieving even approximately an optimum utilization of resources? It is, of course, true that better management on the part of individual farmers with regard to the resources at their command, and the adoption of better methods and techniques can increase substantially the output of land, capital, and of human agents. In this paper, however, the focus is not upon techniques or management but upon the lack of economic efficiency that arises from a mal-allocation of resources among industries and among firms independent of technology and enterprise. Moreover, it will become evident that the rapid advances in agricultural techniques, and possibly also in management, under existing demand and population conditions, have contributed in no small measure to the relatively low economic efficiency characteristic of so much of the agriculture of the United States.⁸

II

To turn now to the studies referred to above, four types of evidence are at hand. The first deals with the output per worker of one part of agriculture relative to other parts; the second, with some differences in productivity between agriculture and industry; the next with some international comparisons; and the last with the marginal productivity of labor and capital in agriculture.

1. *Differences within agriculture.* It is convenient to start with the assumption that the more efficient farming areas in agriculture utilize the resources they employ about as well as do most non-agricultural industries. This assumption implies that relative to industry no significant malallocation of resources exists in the more efficient areas in agriculture; and, therefore, comparable inputs result in outputs of about equal value in industry and in the more

same methods and relative to the same standards, as we do any other human virtues In this sense, efficiency is of the same stuff as the other values, and so is commensurable with them" pp. 129-130.

⁸ See my *Agriculture in an Unstable Economy*, McGraw-Hill, 1945, Chap. III, and "Changes in Economic Structure Affecting American Agriculture," this JOURNAL, Vol. 28, February, 1946.

efficient farming areas. Given this assumption, we leave aside for the time being the question of whether a disparity of resource utilization prevails between industry and the best in agriculture and concern ourselves solely with the situation within agriculture broadly considered. Ducoff and Hagood have done excellent pioneering work on this point, and so have Barton and Cooper.⁹ Ducoff and Hagood ascertained the regional differences in labor productivity in agriculture on a gross and a net value basis taking 1939 output and "a man-equivalent" unit to measure the labor inputs.¹⁰ Barton and Cooper calculated the gross farm production per worker for the years 1919 to 1944.

The facts that emerge in these studies certainly do not support the existing folklore regarding the much vaunted efficiency of American agriculture, provided we look at agriculture as a whole and not at a few selected farms. The figures are indeed devastating in their sweep and force, yet they have not received nearly the attention they deserve from serious students of agricultural economics.¹¹

The West emerges as the most efficient, having an output per man—equivalent 2.5 times as large as that of the South. To put this in terms of 1939 production as reported by the 1940 census, it means that the value of products per man-equivalent in the West was about \$1500 compared to about \$600 in the South. The following table is based on Ducoff and Hagood:

Region	Value of product per man-equivalent ^a		Value added by agricultural production process per man-equivalent ^b	
	(In dollars)	(Relative to Pacific)	(In dollars)	(Relative to Pacific)
Pacific	1,558	100	1,409	100
Mountain	1,423	91	1,204	85
W. N. Central	1,286	83	1,135	81
New England	1,244	80	950	67
E. N. Central	1,197	77	1,112	79
Middle Atlantic	1,129	72	952	68
W. S. Central	700	45	716	51
South Atlantic	608	39	583	41
E. S. Central	486	31	493	35

^a The total value of agricultural products is that reported by the 1940 Census of Agriculture and it does not include Government payments to farmers.

^b Total value of agricultural production (adjusted to the Bureau of Agricultural Economics level and to include Government payments) less the following operating

expenses: feed purchased, livestock purchased, fertilizer and lime, cost of operating motor vehicles, and a group of miscellaneous expenses consisting of such items as seed, insecticides, containers, electricity for production, twine, ginning, operating gas and steam engines, irrigation, grazing, miscellaneous dairy supplies, blacksmith and miscellaneous hardware supplies, etc.

D. Gale Johnson in "Contributions to Price Policy . . .," this JOURNAL, Nov. 1944, p. 642, has a table giving estimates of the net farm income per worker for 1939, 1940 and 1941 expressed as an index. In it the New England region drops from fourth to sixth place, the Mountain region from second to fourth, while the W. N. Central rises to second and the E. N. Central to third. This index ranges from 335 for the Pacific and 265 for W. N. Central to 120 for South Atlantic and 100 for E. S. Central.

RELATIVE OUTPUT PER WORKER WITHIN AGRICULTURE IN THE UNITED STATES
(Pacific Region=100)

Region	1929 ^a	1937-1940 ^b	1939 ^c	1942-1944 ^b
Pacific	100	100	100	100
West North Central	99	87	81	111
Mountain	99	84	85	95
East North Central	70	83	79	89
Middle Atlantic	63	73	68	71
New England	57	60	67	64
West South Central	50	43	51	45
South Atlantic	44	37	41	39
East South Central	36	31	35	34
United States		59		66

^a From Colin Clark, *The Economics of 1960*, Macmillan, 1943, p. 35. Clark's absolute figures are in terms of an International unit and as follows starting with the Pacific, 1102; 1092; 1086, 772, 691, 628, 546, 490, and 394 for East South Central, and are based on earlier work of Professor John D. Black.

^b From Glen T. Barton and Martin R. Cooper, calculated from unpublished data.

^c From Ducoff and Hagood. See earlier reference. The 1942-44 relationships are included to show that even under conditions approaching full employment the major regional disparities in output per worker in agriculture are fully evident. I am mindful, however, that these data omit the "unemployment" of hired workers, often of considerable importance in some regions, especially in parts of the West, while they may include this factor in the case of croppers and others.

⁹ Louis J. Ducoff and Margaret Jarman Hagood. "Differentials in Productivity and in Farm Income of Agricultural Workers by Size of Enterprise and by Regions," U.S.D.A., Bur. of Agr. Econ. Aug. 1944, 54 p. (mimeo.) Glen T. Barton and Martin R. Cooper. *Farm Production in War and Peace*, U.S.D.A., Bur. of Agr. Econ., Dec. 1945, mimeo. FM 53.

¹⁰ The man-equivalent unit used by Ducoff and Hagood "represents an approximation to the labor time input and work capacity of the average farm operator who is under 65 years of age and does not work off the farm in excess of 100 days per year." This estimate was developed to allow for the regional differences in time input, physical capacity, and skills of the labor force in agriculture. See page 3, especially footnote 4 and Appendix, pp. 36-38.

¹¹ It is to be regretted that studies of so much merit should be buried in a casual mimeographed release. Furthermore, other writers have made only the most cursory reference to the many broad implications to efficiency inherent in Tables 1-7, in Ducoff and Hagood and Table 29 in Barton and Cooper.

These wide differences in output embedded in agriculture are not at variance with common knowledge. The cost of this mass inefficiency is not known; nor are the causes well understood, much less the remedies consistent with a "free" society; nevertheless, the fact that the disparities in value productivity are very considerable is generally known. But little is being done to lessen the waste of resources associated with this inefficiency. Rather than break the cake of custom these inefficiencies are "viewed" as natural. It is easy to take satisfaction in the few areas and farms that are relatively efficient and let pride blind us to the cost of the rest.¹²

A word or two on the probable magnitudes involved may be helpful at this stage. Less than one-tenth of the farms in the United States are situated in the West; one-half of them are in the South. The data that follow are also from Ducoff and Hagood based on 1940 Census:

Area	Number of farms (in millions)	Output per worker rating ^a
West (Pacific and Mountain)	.5	1.00
North (West N.C.; New England; East N.C.; and Middle Atlantic)	2.6	.70 to .85
South (West S.C.; South Atlantic; and, East S.C.)	3.0	.90 to .45

^a This rating is merely with regard to differences in output within agriculture. It does not identify and isolate the contributions to production attributable to labor from that attributable to other factors, that is to capital including land. Plainly the bundle of cooperating factors used with labor in the more productive areas is much larger than it is in the South. The capital investment per farm worker in 1939, as computed by Ducoff and Hagood, was \$7,211 and \$6,243 in the Pacific and Mountain areas respectively and down at \$1,958 and \$1,887 in the South Atlantic and East South Central.

Still another formulation of the mass inefficiency in agriculture is at hand if we take all classified farms and put them into two categories as follows:

Value of product per farm	Farms ^a		Labor force in percent	Value of product per man-equivalent in dollars	Total agricultural output in percent
	Number in millions	Percent			
Up to 1,499	4.6	77	65.6	82 to 837	32.5
1,500 & over	1.4	23	34.4	1,087 to 2,850	67.5

Source: Ducoff and Hagood, *op. cit.* Footnote to table at bottom of page 651.

What these figures suggest is that about two-thirds of the labor

force in farming in the United States before the war was exceedingly unproductive. Farm people in this large group for the most part work hard and long but their output has relatively little value; they are underemployed; these human resources are poorly utilized.¹² This widespread inefficiency is not some temporary situation, a New Deal emergency or a cyclical depression, but a development of long standing with one part of agriculture, a small part in terms of the total labor force, relative efficiency and the rest, far down the scale not even half as productive.

2. *Agriculture relative to industry.* Let us now examine the assumption made earlier to the effect that the better areas in agriculture utilize resources about as efficiently as industry. If the value of products from comparable inputs were essentially equal, this assumption would be valid and no inducement would exist for resources to transfer either from industry into such farming areas or conversely. No farming area of importance, except perhaps the Pacific during the war, has during recent decades induced labor resources to enter; instead, the net transfer seems to have been all

¹² A few years ago a group of agricultural experts visited this country. They were cordially assisted. After they had finished their trips to see our agricultural colleges and farms, a meeting with some of the U.S.D.A. experts was arranged. One of the visitors opened by remarking, "Your published statistics indicate that about 1.5 million of your 6 million farms have tractors. Are these figures correct?" He was assured that such were the facts. Whereupon he sagely observed, "Where are the 4.5 million farms without tractors? We have been in every major region but we have not seen a farm without a tractor."

¹³ Duecuff and Hagood put it thus: "Thus when an allowance for types of workers in the several value classes is made, the level of worker productivity on low-income farms is still so low in contrast with that of the higher value classes that the conclusion is inescapable that a tremendous amount of under-employment and ineffective employment existed on the farms in 1939." *Op. cit.*, p. 8. Here again, I am mindful of the fact that the whole economy was running in low gear, several million workers were unemployed and that this "unemployment" is mainly omitted and that this omission affects the two groups differently. But a cursory examination of the data for 1946 indicates that the main relationships herein considered were still present.

^a These data obviously have their limitations. The Census does not identify neatly and exactly economic magnitudes; it does not set out to ascertain the value productivity of human effort devoted to farming. Accordingly, the Census definition of a farm includes many part-time, semi-retired and rural residences. The column "value of product per man-equivalent in dollars," from Duecuff and Hagood, does correct for some of these limitations. Yet in part they persist. It would, however, be shortsighted indeed to become so engrossed with the shortcomings and the details of these data to fail to see the broad outlines of the problem of mass inefficiency embedded in our farming. Better data are, of course, needed but what is much more important is a formulation of the problem in some general economic context so that we can go beyond description to analysis, beyond figures to policy.

in the other direction, namely out of farming even under wartime price conditions, which were obviously exceedingly favorable to farming. There is, therefore, a strong presumption that even the more efficient parts of agriculture have not been as productive as have other industries.¹⁴

If we take the value added by manufacture and compare it with the value added by the agricultural production process, we find that in the West in 1939 manufacture added 2.5 times as much per worker as did agriculture. A gap as wide as this does not support the assumption of equality in output for comparable resources, granted that other important considerations are involved. In the South Atlantic and the East South Central areas this gap is even more striking with manufacture adding more than four times as much value per worker as agriculture. The following data on this point are taken from Ducoff and Hagood.¹⁵

Areas	Value added by the agricultural production process per man-equivalent	Value added by manufacture per employee	Ratio of value added by manu- facture to value added by agriculture ^a
Pacific	1,409	3,222	2.3
Mountain	1,204	3,372	2.8
West North Central	1,135	3,084	2.7
East North Central	1,112	3,094	2.8
Middle Atlantic	952	2,862	3.0
New England	950	2,261	2.4
West South Central	716	2,754	3.8
South Atlantic	583	2,092	3.6
East South Central	493	2,122	4.3
United States	867	2,762	3.2

^a These differences between farm and non-farm focusing on the use of labor resources are reflected in regional disparities in wages and incomes. The median wages and salaries income of male laborers working 12 months in 1939 were as follows:^b

Area	Farm (dollars)	G	Non-farm (dollars)	Farm as percent of non-farm
West	646		1,196	54
Northeast	496		1,145	43
North Central	348		1,093	32
South	262		649	40

^b Louis J. Ducoff, *Wages of Agricultural Labor in the United States*. Tech. Bul. No. 895, July 1945, U.S.D.A., p. 95.

That industry at this stage of our economic development is in general more productive than agriculture is not commonly understood. Beliefs on this point are mixed. In the main, the misuse of resources that this entails goes unnoticed. The low income of most farm people over the years is not usually attributed to a fundamental malallocation of resources among primary, secondary, and tertiary industries, but to shortcomings of the market mechanism (which, of course, has its limitations), to not having enough technological knowledge, to a misuse of our natural resources, and to the selfish interest of other economic groups of society. Meanwhile, the basic causes for these wide disparities in productivity per head and in earnings per worker within agriculture are overlooked.

3. *International comparisons.* On theoretical grounds and from observations it is evident that the general level of productivity of labor in the United States ranks high among the countries of the world. This simply means that the comparative advantage of the human factor is relatively high; it is high because human effort has a large value productivity and its value productivity is large because of the exceedingly favorable combination of cooperating factors. This high level of productivity in turn means high income per head. Accordingly, the level of income of a country may be taken as a rough index of the relative economic efficiency of the human factor in a country.

Colin Clark gives the average real income per head of various countries in terms of an international unit over the period 1925-34. His calculations put the top ten countries as follows: United States, 1381; Canada, 1337; New Zealand, 1202; Great Britain, 1069; Switzerland, 1018; Australia, 980; Netherlands, 855; Eire, 707; France, 684; and Denmark, 680.¹⁴

On the assumption that Clark's income figures provide us with a rough measure of the comparative advantage of the human factor

¹⁴ Walter W. Wilcox in "The Wartime Use of Manpower on Farms," this JOURNAL, August 1946, shows a decrease in the farm population, 1940 to 1945, of 12.5 percent for the Pacific area and 19.1 percent for the Mountain area, while the decline for the South Atlantic was 15.9 percent and for the East South Central 18.8. Wilcox includes some figures showing the decrease in farm employment, 1939 to 1945 annual averages, which show a drop of 8 percent for the United States as a whole with one region running counter to the stream and this in fact the most efficient area, namely, the Pacific with an increase of 3 percent.

¹⁵ Based on Table 3, p. 20, of the Ducoff and Hagood mimeographed report already cited.

¹⁶ Colin Clark, *The Conditions of Economic Progress*. London: Macmillan, 1940, p. 41.

in these countries, we would expect the output per head to be such that the value productivity of agriculture in the United States would be, if anything, slightly higher than that of New Zealand, and Australia, for example. The opposite, however, seems to be true. When we take the overall value productivity of agriculture, New Zealand and Australia produce about twice as much per head as we do in the United States. Denmark affords another comparison where the general level of output per head is about half that of the United States, and yet the agriculture of Denmark appears to produce virtually as much output per person as does farming in the United States. The following figures with regard to the average real production of agriculture per male producer are from Colin Clark's two recent books:

Country or area	Productivity per male producer (in terms of Colin Clark's International Unit) ^a
New Zealand	2,444
Australia	1,524
Argentina	1,233
Pacific (area)	1,102
West North Central (area)	1,092
Mountain (area)	1,082
Uruguay	1,000
East North Central (area)	772
Middle Atlantic (area)	691
United States	661
Denmark	642
New England (area)	628
Canada	618
Holland	579
West South Central (area)	546
Germany	490
South Atlantic (area)	490
Great Britain	475
Switzerland	433
France	415
East South Central (area)	394
Belgium	394
Czechoslovakia	287
Estonia	268

^a From Colin Clark *The Conditions of Economic Progress*, London: Macmillan, 1940, p. 246, and *The Economics of 1960*, p. 35.

L. Rostas in a recent report¹⁷ places the productivity of labor in British and American agriculture before the war at £159 and \$584

¹⁷ L. Rostas, "Productivity of Labour in British, American and German Agriculture," *Royal Economic Society*. Memo. No. 107. Sept. 1946. Pp. 14-17.

respectively. Taking the exchange rate at \$3.52, the value productivity of labor in agriculture in these two countries turns out to be about the same. This fact, namely, that the agriculture of the United States is no more productive than that of the United Kingdom, in Rostas' mind, goes a long way in explaining why it was that the standard of living in the U. K. was not substantially below that then prevailing in the United States at a time when the manufacturing industry in the United States produced about twice as much per person as it did in the U. K.

These fragmentary data indicate that the economic efficiency of agriculture in the United States is far below par, with par in this context being the standard set by the general level of production per head, which is indeed high.

It follows that the output in agriculture should also be correspondingly high and it would be if resources were properly allocated between agriculture and other fields within the economy. If the economic efficiency of human effort in agriculture were comparable to the productivity of labor in general in the United States it should have an output at least 25 to 50 percent above that of agriculture in western Europe. But what do we observe? American agriculture as a whole is no more productive than it is in the U. K., according to Rostas' study. In fact, half of the farms of this country appear to fall far below the U. K., Denmark, Holland, and the agriculture of other countries of western Europe. One has to go to the very backward agriculture of eastern Europe to find productivity as low as it is on fully half of the farms of the United States.

4. *Marginal productivity of resources employed in farming.* Economic theory makes equal marginal returns for comparable factors the test of economic efficiency. Economy is achieved when this criterion is met. Little indeed has been done to identify and ascertain the marginal productivity of the factors employed in agriculture, a necessary and preliminary step to the application of this crucial economic test.¹⁸

D. Gale Johnson^{19,20} has carried forward some work in this

¹⁸ See the section of my paper "Income Accounting to Guide Production and Welfare Policies," dealing with allocative efficiency. *Western Farm Economics Association Proceedings*, p. 15.

¹⁹ "Contribution of Price Policy to the Income and Resource Problems in Agriculture," this JOURNAL, Vol. XXVI, No. 4, Nov. 1944.

²⁰ Earl O. Heady in "Production Functions from a Random Sample of Farms," this JOURNAL, Vol. 23, Nov. 1946, reports results he has obtained for Iowa farms for the year 1939. His study, unlike that of Gerhard Tintner and O. H. Brownlee, "Production Functions Derived From Farm Records," this JOURNAL, Vol. 26,

sphere. He found that in 1939 the marginal productivity of capital employed in agriculture, taking American agriculture as a whole, appeared to be about 12 percent, and that for labor about \$390. He goes on to point out that a "reduction of 20 percent in the labor supply would reduce the marginal productivity of capital from 12 percent to a little less than 10 percent." Accordingly, even then the differential return between the rate of interest and the marginal productivity of capital would remain very wide. Johnson has unpublished data that show the marginal returns on capital in Georgia to have been about 19 percent in 1939, while in Iowa the returns appear to have been about 10 percent.²¹ The marginal efficiency of capital in much of agriculture is higher than the going rate of interest even with liberal allowance for risk and uncertainty. Contrarywise, the marginal efficiency of labor is far below the going rate of comparable labor in other fields even with generous allowance for the cost of migration and the risk and uncertainty this entails, viewing the economy as a whole.²²

These four bits of evidence all point to the same conclusion: American agriculture by and large is very inefficient. It does not approach the standard of economic efficiency set by the American economy. Although some parts of agriculture show up fairly well, the general level may be 25 to 50 percent below par; and major parts, fully half of all farms, may fall below the 50 percent level. To put this tentative characterization another way: it suggests that more than half of the labor force devoted to farming has an output (value productivity) less than half the standard output of comparable human resources in the American economy taken as a whole. This simply means that resources—human effort, land, and capital—are poorly utilized in much of agriculture. The evidence that we have cited suggests that the waste is prodigious, waste chiefly of time and energy of millions of farm people and of a vast amount of natural resources. Three economic afflictions, each of

August, 1944, deals with farms that are a cross-section of farming in Iowa. It is, however, a *within Iowa* analysis and thus pertains to a section of American agriculture most nearly efficient in the allocation of resources generally. This observation should not detract from the merits of the technique of analysis. The results, although interesting and useful within Iowa, give no clue to the general problem of achieving an optimum utilization of resources within the economy as a whole.

²¹ See also Ducoff and Hagood, *op. cit.*, Table 3 on value added by the agricultural production process per \$100 fixed capital investment.

²² See my *Agriculture in an Unstable Economy*. New York: McGraw-Hill, 1946, p. 78 and Chapter IV.

them chronic and of long standing, may be identified in agriculture as a result: (1) *under-employment of human resources*, (2) *an unwarranted disinvestment of natural resources*, (3) *a widespread rationing of capital*.

III

It certainly is not my contention that the facts cited are conclusive. They do, however, give an inkling of what we may find when more serious studies of economic efficiency of American agriculture are undertaken. Much needs to be done to identify and measure the relative productivity of the various resources devoted to farming, relative to the output of comparable resources in other fields.

Yet it must be borne in mind that this endeavor is merely a preliminary step and we should guard against the pitfall of making it an end in itself. The main task is to ascertain the causes for this adverse development. What broad forces—economic, political, and cultural, and each in their institutional setting—are fundamentally responsible for this vast waste of resources in farming? Why is the United States in contrast, for example, with New Zealand and Australia, so generally afflicted with resource malallocations as between industry and agriculture? In short, what are the root causes for the mass inefficiency of our agriculture?

Until we achieve a rationale that gives a valid explanation for this development, we will be ill-equipped for forging appropriate remedies.

In this context, agriculture in most advanced Western countries has become a depressed industry. Why do the primary industries—mining, farming, fishing, and the like—become depressed? To penetrate into this problem which is spreading ever farther among primary industries we need above all a basic economic rationale, a theory that tells us why most primary industries become depressed.

The premiums for inquiry in this sphere should be large because the problem is so significant and its solution so vital to a better performance of our economy. Yet little in fact is being done to analyze this complex and important issue.

It may be well to reiterate that farm technology and farm management will not provide either the theory or the facts for analyzing and resolving the problem of mass-inefficiency characteristic of our agriculture at this state of our economic development. It is quite

plausible that this widespread economic inefficiency would not have arisen in Western countries had the Ricardian conditions prevailed, that is, had the supply function of food stayed highly inelastic, so inflexible in fact that as population increased and as economic progress occurred in non-agricultural branches, it would have been necessary to transfer relatively more capital and labor into agriculture in order to produce the larger quantity of food required.²³ Advances in farm technology and in the state of farm management, however, have been responsible for avoiding the Ricardian consequences: an avoidance of the higher cost of food, rising rents, and a progressive enrichment of the land owners as population pressed against the means of subsistence. In forestalling this dismal development, technology and management has made possible cheaper food, and falling rents, and have rendered a great many farmers superfluous, so it appears.

It may well be that one of the main causes for the economic inefficiency of agriculture in Western countries is to be found in the very advances in farm technology and the researches that have made this possible, coupled with the forward strides that have been made in farm management as it is now conceived and applied.

²³ Such a development would of course have restricted the economic progress of the non-agricultural sectors of the economy.

ECONOMICS OF FARM LEASING SYSTEMS*

EARL O. HEADY

Iowa State College

AN IMPORTANT part of the nation's agricultural resources is employed on farms operated under some one of the various leasing arrangements. Nearly one-half of our farms obtain control of part or all of their resources by this means. Because of the quantity of resources so controlled, the farm lease stands on a level with other important phenomenon which condition the efficiency with which food and fiber are produced. It is a known fact that rental payments are determined by a maze of forces which in addition to competition include custom and elements of bilateral monopoly. Obviously, lease terms so determined may have varying effects upon the organization of resources on individual farms.

Over a period of years farm leasing arrangements have been subjected to a sizeable amount of investigation. A large portion of this effort has, however, been devoted to describing the common leasing system and the one of these which best fits the situation peculiar to individual landlords and tenants.¹ Since each farm situation is unique in itself, the specialist who expects to improve leasing arrangements through advice retailed to tenants or landlords might well use the theoretically perfect lease as his point of departure. Yet the theory of leasing systems and customs has never been fully developed.

This paper has as an objective the further economic analysis of known leasing customs. In part it is a refinement of previous work, but it also analyzes other leasing customs which are known to exist and which have mainly been described. The method followed is that of setting forth the economic characteristics of perfect leasing systems, comparing known customs with these standards and suggesting the means whereby the perfect lease would eliminate imperfections which now exist. This procedure is based on the assumptions that (1) no drastic change in the amount of tenancy will come

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The suggestions of I. W. Arthur, Ross Bauman, Raymond Beneke, and Virgil Hurlburt have been very helpful.

¹ Ackerman ("Status and Appraisal of Research in Farm Tenancy," this JOURNAL, Vol. 23, Feb. 1941, p. 283) brings out this point and suggests that lease studies should be directed toward isolation of factors which produce undesirable effects.

about in the near future and therefore leasing will continue to be an important factor conditioning use of resources, (2) some amount of public resources will continue to be invested in advising tenants and landlords, and (3) the theoretically perfect lease may often serve better than existing customs in pointing the direction of improvement. Although somewhat abstract in nature the discussion can be looked upon as the analytical setting for additional empirical investigations. The study focuses on leasing systems per se and their effect on the organization of resources on the individual farm. It is not concerned with the sociological or legal aspects of tenancy. Neither is it concerned with the relative values which society attaches to alternative forms of tenure, social wastes which arise outside the farm business, or the problem of personal income distribution as such.

Perfect Leasing Systems

In setting forth the characteristics of perfect leasing systems or in analyzing existing customs, it is necessary to delineate the economic setting within which the evaluation is to take place. For the purpose of the analysis presented here, the following are taken as given: (1) competition, except for imperfections growing out of leasing systems, and the private ownership of resources, prevails and (2) the pricing system is looked upon as the appropriate means for expression of consumer preference and hence for allocation of resources in the most efficient manner.² A perfect leasing system must thus result in (1) the most efficient organization of resources on the farm relative to consumer demand as expressed in market prices and (2) an equitable division of the product among the owners of the various resources employed in production. Under the conditions which have been set out above, these are the appropriate criteria for evaluation of leasing systems. For the definitions of "efficient" and "equitable" which follow, attainment of one must result in the simultaneous attainment of the other. Distinction between the two is made only because this necessary condition need not hold true under the definitions of "equitable" used in certain instances.

² It is recognized, of course, that perfect competition does not hold in a large part of our economy and also that the pricing system does not result in a most efficient allocation of resources even in agriculture. However, these assumptions are set forth in order to limit the scope of this study to leasing systems alone.

Equitable Division of Product

Under the institution of private resource ownership there can be, of course, only one definition of an "equitable" division of the product. The return to any one of the resource owners must be based on the marginal productivity of the resources which the individual contributes. His share of the total product is then established by the quantities of the various types of resources which he contributes to the firm and the marginal productivity of specific resources. The reasons why "equitable" cannot be defined otherwise in a setting of competition and private ownership of resources are elementary: (1) Unless the marginal value product is imputed as a reward to each factor, the most efficient allocation of resources cannot be attained.³ (2) The institution of private resource ownership honors no other definition.⁴

Since in the long-run the most efficient allocation of resources cannot be attained without an "equitable" division of the product (as defined here) and vice versa, most of the analysis of this study will be in terms of the former. It must be emphasized, however, that this meaning of "equitable" does not refer to a situation in which it appears that each party receives an income in proportion to his contribution as an average for the entire business without regard to its various segments (a definition implied in a large num-

³ Unless the firm pays a cost for the use of resources equal to their marginal productivity, the allocation of resources will not be in harmony with consumer preferences. Waste of resources will result because inefficient firms may be able to exist and especially because the wrong combination of products will be forthcoming. Even under public ownership of resources and an equal distribution in income, maximization of the social product would require that each individual firm pay a cost for the use of resources equal to their marginal productivity. For a complete discussion along the lines of the latter see O. Lange, and F. M. Taylor, *Economic Theory of Socialism*.

⁴ This statement refers only to the sale of productive services by the individual resource owner. Many policies of this nation's government have obviously resulted in personal incomes greater than would hold true if the marginal value productivity of resources were determined in the market alone. The consequent distortion of returns on resources relative to consumer preferences has resulted in an inefficient use of resources. However, these policies have not sanctioned a charge other than the marginal value productivity (as determined by market prices and governmental policy) for the use of productive services sold by the individual to the firm. Although there may be scattered instances in which legislation has resulted in a charge for resources (sold by the individual to the firm) out of line with their marginal value productivity (as expressed by market prices alone or by price and governmental policy), there is little evidence that this was the original intent. Labor union activity, for example, has undoubtedly resulted in wage payments out of line with the marginal value productivity of labor in numerous instances. Yet the objective of the original labor legislation perhaps was that of bringing wage payments into line with the productivity of labor.

ber of lease publications). The importance of this point is brought out in a later part of this study.

Efficient Use of Resources

A test of the perfect leasing system is in its effect on the total product available to consumers. Resource and commodity prices should, in a perfect market, indicate the pattern of production and combination of resources which is most nearly consistent with a maximization of consumer satisfaction. Leasing systems should facilitate an organization of resources within the individual farm which will bring about this pattern. Any characteristics of a lease which violates the pricing system in this respect is imperfect. If at a given time, consumer satisfaction is to be maximized with a combination of products made up of X_A units of commodity A at price P_A and X_B units of B at price P_B , an imperfection of the leasing system occurs if the resulting output includes less than X_A units of A or more than X_B units of B at prices higher or lower respectively than the otherwise equilibrium prices. Finally, the leasing system is imperfect if it does not encourage adoption of the most productive combination of resources in the production of a unit of a given commodity. If the stock of resources in the economy is great enough to allow the output of X_C of all commodities under the most efficient technique, any characteristic of a leasing system which results in adoption of another technique and a total output of less than X_C is undesirable.

Under competitive conditions, this maximum product can be forthcoming only if the firm has attained the necessary equilibrium conditions. Aside from other imperfections in the market these conditions are, in the long-run, simply those which are necessary for the maximization of profits by the individual firm. Accordingly, an appropriate methodological tool for evaluation of leasing systems is that of a firm acting rationally in respect to the maximization of profits from resources which it controls. The leasing system thus becomes imperfect if it hinders allocation of resources in the direction of these necessary conditions: (1) A combination of products (choice of enterprises) which will equate marginal returns on resources employed in production of each. (2) Substitution of factors (methods of production) such that the ratio of their marginal productivities is equal to the ratio of their prices. (3) Combination of variable with fixed resources (where resources are fixed by con-

ditions falling outside the leasing arrangement) such that marginal returns and costs for the former are equated. (4) An over-all scale of operations which equates marginal cost and returns at a level consistent with the cost price relationships and normal uncertainties of the market.⁵ (These relationships must hold for all resources employed by the firm irrespective of ownership.)

Assuming that the firm has knowledge of alternative techniques and is able to formulate otherwise normal price expectations, a leasing system will result in an uneconomic organization of resources within the firm only if it contains a provision which results in some one of the following imperfect conditions.

Situation I: A fixed supply of specialized resources is established within the firm and input of these is not related to their marginal productivity. This inflexible supply of specialized resources may have various effects upon the use of resources within the firm: It may limit the over-all scale of operations in the sense that the firm cannot equate marginal costs and revenue at a level suggested by market prices. In the production of a given commodity it may also result in a substitution of other factors or methods for the specialized resources in a manner which violates the structure of resource prices. Where funds are limited and capital rationing has to be taken into account, a more important effect may be the allocation of resources between different products. This is illustrated in Figure 1 which assumes that two factors (*A* and *B*) are employed in the production of commodity *X*. The input of *B* is fixed for the firm. However, *A* can be varied in a manner such that returns are equated with those on other resources (*C*) which can be used in producing still other commodities (*Y*). The curve *MS* indicates the net marginal return which would be forthcoming on factor *A* if *B* were also varied. (*A* and *B* combined in optimum proportions but decreasing returns to scale).⁶ The curve *MR* indicates net marginal returns on factor *A* when the quantity of *B* is held constant (variable proportions and sharply diminishing returns to *B*). The highest possible

⁵ These conditions might be stated in several alternative ways. However, these four somewhat simplified conditions have been segregated since problems of leasing systems fall into these distinct categories. The last statement assumes that in the long run the scale of operations will approximate any optimum which might conceivably exist.

⁶ The nature of the marginal returns curve shown might arise because of decreasing returns to scale in the classical sense or because of uncertainty and the discount of future returns. The exact explanation of the curve is unimportant for this section of the analysis.

returns on C resources is equal to ON . If factor B were not fixed, the firm would employ OQ units of A in the production of commodity X before any inputs of C were used in production of Y . However, when the supply of factor B is inflexible, resources are diverted to commodity Y as soon as OP units of A have been employed in production of X .

A fixed supply of resources tends to be created under the leasing custom wherein the landlord and tenant each furnishes specialized resources while the product is divided along parallel and equally rigid lines. Under the typical crop-share (or cash) lease the landlord furnishes the fixed assets in the form of land and buildings while

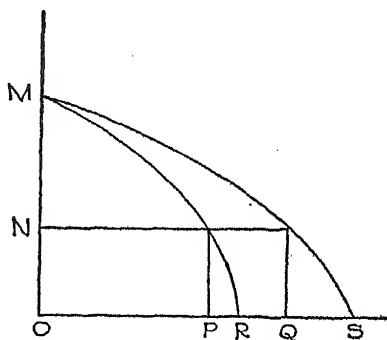


FIG. 1

the tenant furnishes all or a major part of the working capital. Often the kind and quantity of buildings found on a rented farm are those which existed when the landlord obtained title and hence are the result of the price-cost relationships of the past or the financial situation of previous owners. Input of these resources may not be extended even though the potential marginal return is greater than for other types of resources; since the landlord does not receive a direct share of the product he may be unwilling to add investment in buildings. This situation is implied in numerous leasing and tenure studies which have called attention to lack of buildings and other livestock facilities on rented farms. Schickele indicates that the landlord has no strong inducement for furnishing buildings beyond a minimum necessary to attract competent tenants under a crop-share lease since his share of the product comes not from the livestock but from the land.⁷

⁷ Rainer Schickele, "Effect of Tenure Systems on Agricultural Efficiency," this JOURNAL, Vol. 23, February 1941.

In terms of the farm, this fixed supply of durable resources may have various effects: as Schickele suggests, it may curtail the overall scale of operations. It may also bring about inefficient production techniques such as, for example, the use of hand rather than machine-milking methods. The tenant, in the allocation of resources between enterprises, may provide his own brooder and produce poultry for meat in the event facilities for laying hens are lacking. A lack of facilities for dairying may turn his efforts in the direction of pork production. Or, his total investment in livestock maybe curtailed while additional capital is allocated to machinery and crop supplies. Yet the inefficient allocation of resources outlined above is not inherent in leasing systems. If this were true the only remedy would be a single owner of all resources (owner-operated farms and elimination of leases.⁸ Decisions as to allocation of resources would then be divested in a single individual and marginal returns might be equated for all lines of investment. The inefficient use of resources arises, however, not because of leasing per se but because of the custom wherein a rigid demarcation is established between the types of resources and the product is not properly imputed to each. An appropriate method of eliminating this imperfection is obvious. The cause of the "rationing" needs to be abolished. A perfect leasing system would solve the problem by scrapping the rigid segregation of inputs and product shares by types of resources and by substituting the proper leasing provisions in its stead. There are at least two alternatives here. Under one the tenant would be allowed to furnish and realize the entire net return on the otherwise fixed resources. This implies compensation for unexhausted resources and is discussed in the following section.

The other alternative would also provide the proper flexibility in combination of resources; the landlord would not only furnish the durable resources but also would realize the net marginal return on the investment. In theory the lease needs to provide such a fine division of receipts that the true marginal return on buildings is imputed to the landlord and marginal returns are equated throughout the firm.

In a practical sense then, the lease should, among other things, provide for two distinct payments; one representing the return on the land and another as the return for other durable capital investments in buildings and equipment. A payment of the latter nature

⁸ This means implied in some tenure studies.

is entirely justifiable and should be encouraged for systems of farming in which livestock is an integral part.⁹ It is also appropriate in the case of granaries for storage or other durable resources which have a positive value productivity. The possibility of improving leasing arrangements through this means has been somewhat overlooked. This is evidenced by the emphasis which has been focused on compensation for unexhausted resources or farm ownership as a

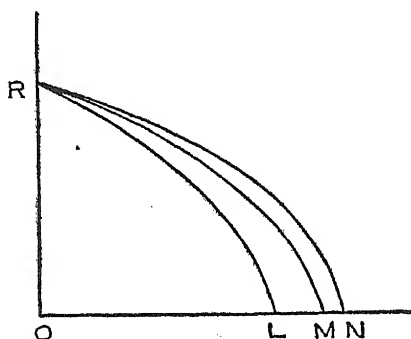


FIG. 2

solution to the evil. In the lack of legislation for compensation, improved use of resources might also be brought about by breaking down customs which do not allow the landlord the proper return on improvements and other durable investments.¹⁰

Situation II: Uncertainty is created beyond that which would normally exist in the market. If the lease creates uncertainty which would not otherwise exist, the outcome may well be of the nature illustrated in Figure 2. Net marginal returns are represented on the

⁹ Obviously, this provision is not applicable for types of farming in which improvements play no part. The marginal return would be zero regardless of resource ownership in this case. Too, the discussion does not refer to a payment on a set of lavish improvements which are out of line with their productive value. It means only that "rent" is justifiable for the kinds and amounts of improvements which allow an approximate best use of resources for the farm as a unit.

¹⁰ Under a share lease, part of this return is represented in the greater absolute product where livestock is kept and manure is applied to the land. The returns of this nature represent one component of the total return to the landlord for durable resources. It does not necessarily hold, however, that the entire marginal value productivity of buildings and similar improvements is so reflected. Were this true the investment in improvements would be greater on tenant-operated farms. Under a perfect leasing system, the returns to the landlord for investment in improvements should not be confounded with that for the land. The two should be kept distinct partly to prevent development of the undesirable custom described here but mainly to prevent a distortion of costs such as might arise under a crop-share lease. (See later discussion of costs and premiums under crop-share leases.)

vertical axis and input of resources (and the time span) on the horizontal axis. (This assumes that as more and more resources are employed by the firm, additional investment takes the form of resources transformed into product over correspondingly longer periods of time.) The line RN indicates the return expected under the most favorable techniques were the rates of transformation and the price relationships existing at the time of formulation of production plans to be realized. In the absence of uncertainty the firm would thus invest a quantity of resources equal to ON . Under normal market and technological uncertainties, however, future returns may be discounted (curve RM) and a quantity of resources equal to OM will be employed by the firm. If the lease attaches additional uncertainty to the individual firm, discounting of future returns will be even greater (curve RL) and investment of resources will be extended only to OL . If uncertainty is increased by a like degree for each enterprise, the only effect will be a curtailment in over-all scale of operations by the firm. If the degree of uncertainty created by the lease is not the same for all enterprises, however, the firm will tend to divert resources away from enterprises for which it is relatively great to those for which it is relatively less. (Future returns will be discounted more for the former than for the latter.)

In practice, uncertainty is created by the time span of the lease. For a lease which will definitely be terminated in one year, the return to the tenant on resources such as lime or fertilizer is diminished by the amount of the product to be expected in the second and subsequent years. Leases which extend beyond one year but which are subject to termination on short notice give rise to uncertainty which results in a high discount of the returns to be expected on resources which are transformed into product only over a period of several years. Tenant investment thus tends in the direction of resources which can be transformed into product in one season and for which the return is relatively certain. Instead of investing in lime, fertilizer, or seed for legume crops, he turns his investment in the direction of tractor fuel for more cash grain crops. Production of such livestock as hogs for which the production period is relatively short may be favored over dairying. Or, the method employed in production of a given type of livestock may be imperfect since more durable equipment would otherwise be curtailed because of the cost of moving tenant-owned equipment. In any event the allocation of resources within the business will

deviate from that which would occur were no uncertainty created by the leasing system.

This imperfection may be alleviated through (1) long-term contracts or (2) compensation for unexhausted resources. The specific advantages of these provisions have been discussed in detail elsewhere and in one sense need no further elucidation. However, two points are worthy of emphasis: First, the perfect leasing system would call for compensation greater than the cost of the resources; returns would be based on the productivity of the unexhausted portion. Otherwise investment will still be in favor of resources transformed within a season. The tenant with limited capital is not likely to invest in "lime," for which he will realize the original cost alone two years hence when he can invest in "hogs" which will return the original outlay plus the normal profit within the year. In a practical sense, compensation should cover not only the original outlay but also some return on the investment of the unexhausted portion of semi-durable resources (when the investment has a positive value productivity for subsequent operations).¹¹ Second, compensation for unexhausted improvements should not be looked upon as a perfect substitute for the provisions outlined in the preceding section. Compensation best applies to semi-durable resources such as lime or fertilizer under short-term leases while the latter is more nearly appropriate for buildings and other permanent improvements which require a large capital outlay and can be transformed into product only over a very long period. The most profitable organization on a given farm may call for a dairy enterprise and erection of a new barn. However, if the tenant has limited capital, he is unlikely to invest funds in a barn which will stand empty because he cannot then buy the cows even though he will receive compensation upon termination of the lease.

Situation III: The cost structure (or relationships of returns) within the firm is distorted through a bookkeeping transfer from one enterprise to another.¹² Resources are free to move between all segments of the business in this case, and the firm will attempt to maximize profits by equating marginal returns in each alternative.

¹¹ See Marshall Harris. "A Suggested Adjustment in the Farm Tenancy System," this JOURNAL, Vol. 19, Nov. 1937.

¹² This differs from the case previously outlined in following respect: In 1 the proportion in which some resources must be combined is given, and distorted costs structure for others grows out of this fact. In 2 the distorted cost structure is given and the inefficient proportionment of resources is the result.

However, as long as it must adhere to the "bookkeeping" rather than the true cost structure, the resulting allocation of resources will again differ from that which would hold under an unrestricted system of prices. This outcome is illustrated diagrammatically in Figure 3. The true marginal costs for two commodities A and B are represented by mca_1 and mcb_1 respectively. On the basis of the true costs, resources will be allocated between the two commodities to give the output OM of both A and B . However, if a bookkeeping transfer of costs is effected from A to B as indicated by the marginal costs mca_2 and mcb_2 , the allocation of resources (on the basis of the "bookkeeping" costs) will be such as to give outputs of ON and OP respectively. There are many examples of such cost transfers under farm leases. These are brought out in the next section.

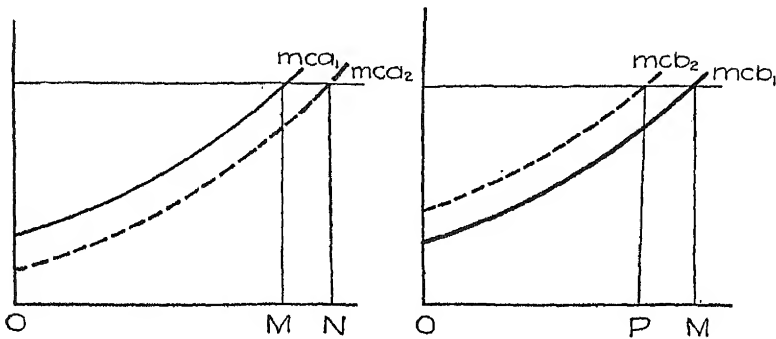


FIG. 3

Similar misallocations can take place within the firm even if bookkeeping transfers of costs do not take place. If the lease arrangement establishes a cost for some categories of resources (by custom or other arbitrary methods) either higher or lower than that representative of an unrestricted market, the distribution of resources between the various alternatives will not be in line with consumer preference as expressed in market prices: If the cost is lower (commodity A in Figure 1), too great a quantity of resources will be invested in production of the commodity. If the cost is higher (commodity B in Figure 1), too little of the product will be forthcoming.

Each of the common leasing systems may have somewhat unique effects upon the structure of cost and returns within the firm. Accordingly, each is treated separately in the following pages.

Straight Cash Lease

The straight cash lease provides that a definite sum be paid each year. The rent is thus a fixed cost and since it is not a function of output, the payment has no bearing on the firm's marginal cost for any unit of product. Assuming that it does not result in a fixed supply of specialized resources or creation of uncertainty aside from the market, the straight cash lease thus makes profitable the most efficient combination of fixed and variable resources. Since the firm pays the full marginal cost and receives the full marginal return, it will apply inputs of variable factors (lime, fertilizer, number of cultivations, improved seed rotation, etc.) to the fixed factor (acre of land) which will equate marginal revenue and marginal cost at an output (yield per acre) which reflects the most efficient combination of factors as given in market prices for resources and commodities.

Aside from uncertainty the cash lease also encourages the most efficient allocation of resources between alternative commodities within the firm. As a cost of using resources, the rent payment is not explicitly tied to any single enterprise. There is however, an implicit cost of using the leased resources for a given enterprise. This is in the nature of an opportunity cost and is dependent upon the transformation rates and the prices for the various alternative products. Allocation of resources between products should thus conform to consumer preferences as expressed in the market. This is in contrast to share leases for which rents are attached to individual commodities and tend to become inflexible over time with the consequence that costs within a firm may be distorted.

Allocation of resources between different enterprises may be imperfect, however, because of uncertainty and the degree of returns discounting growing out of the fixed payment. The fixed rent obligation has an effect akin to that of reducing the tenant's equity in his business. The firm operating under a cash lease stands a greater chance that its equity will be erased and bankruptcy will result if the price level drops by more than a given amount than will the one operating under a share lease. The firm can partially hedge against this eventuality through its selection of products. Since the probability of dispersion between expected and realized prices is less for the near future than for later dates, the operator will tend to select products (profits prospects otherwise favorable and even if the span of the lease creates no uncertainties) which will result in

the transformation of resources in the shortest possible period of time. By selecting commodities for which the production period is less than a year such as grain crops and hogs the hedge against insolvency is greater than if resources are invested in hay crops and roughage consuming livestock for which the transformation period extends over a longer period of time. To the extent that the cash lease places a premium on allocating resources in this direction society gets a different combination of products than would otherwise be forthcoming. This fixed rent payment may also have the effect of curtailing the over-all scale of operations. Since as the firm takes on additional liabilities, the probability that a price decline (or other unfavorable event) will result in bankruptcy becomes greater, it will tend to borrow less funds and employ fewer resources than would hold if the rent were not an explicit payment to be made at a later date.¹³

Improvement, if not perfection, of the cash lease may be brought about, however, through the modification suggested in the next paragraph.

Flexible Cash Lease

Under this leasing arrangement the amount of cash rent actually paid varies with the price level. The estimated rent (R_0) is established for the price level of a given year or base period (P_0). The rent actually paid in a given year (R_1) bears the same ratio to the base period rent as the price level of a given year (P_1) bears to that of the base period [$R_1 = R_0(P_1/P_0)$]. Although somewhat uncommon, the cash rent also can be varied on the basis of deviations of crop yields away from the average (deviations for a given geographic area than for an individual farm since in the latter case the lease becomes a simple crop-share lease). Although the cash rent paid varies with price and yield, it is not a function of output on the individual farm within a given year. Therefore, marginal costs are of a nature to allow the most efficient combination of variable and fixed resources. The flexible rent (both price and yield) does not have the same effect as the straight-cash lease in lowering the tenant's equity in the case of crop failure or price decline. Therefore, it should not place the same premium on selection of com-

¹³ For a detailed discussion of the relation between increasing risk and the firms, declining equity, see M. Kalecki, *Essays in the Theory of Economic Fluctuations*, pp. 95-106.

modities for which the production period is short and for which prices can be forecast with a greater degree of accuracy. It should also be more favorable to a scale of operation consistent with the product and resources prices of the market.

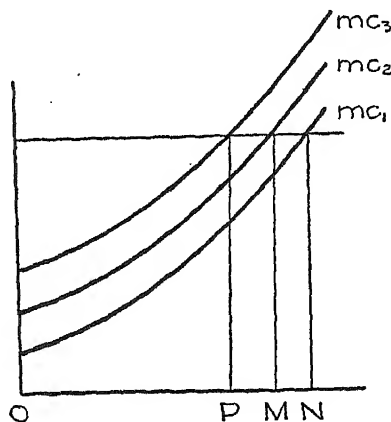


FIG. 4

Crop-share Lease

Under the crop-share arrangement a fixed proportion of the output is paid as rent on the land. (A variation of this lease is one in which a fixed share of the product is paid as rent for grain crops while cash rent is paid for the use of pasture and hay land. The several variations of this system of renting land are covered in this single discussion of crop-share leases.) The rent payment is a function of output and therefore represents a part of the marginal cost of any unit of product. An expected consequence of this form of lease is illustrated in Figure 4.¹⁴ The marginal cost of obtaining different outputs per acre under a cash lease is represented by mc_1 . The marginal cost for a one-half share lease is represented by mc_3 . (It is equal to the marginal cost under the cash lease plus one-half the output if the share rent is considered as a cost for the use of resources.) Whereas the firm would apply variable factors (lime, fertilizer, number of cultivations, etc.) to fixed factor (acre of land) to obtain an output (yield per acre) of ON in the absence of a share rent, it will extend output only to OP under the one-half arrangement.

¹⁴ See Schickele, *op. cit.*, for a similar analysis.

A survey of leasing publications indicates that there are wide variations in sharing of the cost of certain variable resources between tenants and landlord. In some instances fertilizer, seeds and similar supplies are paid by the landlord or tenant alone; in other cases the costs are shared.¹⁵ Either the landlord or the tenant may find the application of lime or fertilizer unprofitable when he must bear the full cost. Or the same obstacle may be encountered for investments which the landlord alone is customarily expected to make. If the tiling of land results in a product worth \$1.90 for each \$1 input, the landlord will be unwilling to make the investment if the return must split with the tenant under a one-half share lease. Yet the imperfection is not inherent in the share characteristics of the lease. Instead, it grows out of the established customs as to method of sharing costs. A perfect share lease would provide the profit incentive for the most efficient combination of resources. Only one condition is necessary for a perfect lease in this respect. However, it is a complex provision. The cost of variable factors (where one factor such as land is fixed) must be divided between the landlord and tenant in the proportions that hold for the division of the product. Theoretically, a share lease in which landlord and tenant separately furnish single categories of resources and in turn realize a fixed share of product would approximate perfection only one case. It is the appropriate arrangement — resources must be combined in fixed proportions — if a single resource is combined with others in fixed proportions, the variable factor should be shared between the landlord and tenant in proportion to each receives. In a share lease, the return to each resource is always be divided

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these is the tendency toward uniform rental shares over wide areas.¹⁷ Beneke, for example, found no significant relationship between share rentals and crop yields over heterogeneous soil areas in Iowa.¹⁸ Some contend that uniform rentals over areas of varying productivity have no important effect on the equitableness of the lease or the efficiency with which resources are used since (1) if the share rents for the better land underestimate the true economic rent, the difference can be and is made up by higher cash rent and on hay and pasture, or (2) higher share rents on less productive land include not only a payment for use of productive resources but also a payment for rent on consumer's goods in the form of a house and other living facilities. In the Iowa study cited previously, a significant cash premium on hay and pasture was found to exist. This arrangement effects a bookkeeping transfer of costs from grain to hay and pasture crops (Situation III).¹⁹ Accordingly, more grain (and grain-produced livestock products) and less forage (and forage-produced livestock products) will be forthcoming at a given time that would hold if resources were allocated strictly in accordance to the pricing system. This cost transfer has even greater implications over a period of time since forage crops play an important part in the conservation of soil resources.

The practice of including a premium for the use of living facilities on less productive land is in itself undesirable. Figure 4. The line mc_2 represents the marginal net worth share approximates the true economic rent of one-half (mc_3) is established. The reports vary between certain areas is between broad regions of economic rent resulting from land use. However, numerous studies within areas which are highly heterogeneous

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lished to include a premium for living facilities. Whereas the operator would employ variable factors (fertilizer, etc.) per unit of fixed factor (land) to obtain an output (yield) of *ON* under the one-fourth share lease, he will find it unprofitable to extend output beyond *OP* under a one-half share.²⁰

A similar premium is sometimes charged for special housing facilities or outstanding improvements on highly productive land. The premium here may take the form of higher than normal cash rents on hay or pasture (share rent held constant at the customary rate). This again represents a bookkeeping transfer of costs from the household to the firm and less hay and pasture may be expected.

Under the perfect lease, any special premium to be exacted from the tenant for use of buildings should take the form of a flat payment per annum. As a fixed cost it does not alter the structure of marginal cost within the firm and consequently encourages the most efficient resource allocation. In any event a strict demarcation should be maintained between payments for the use of consumer goods and productive resources. Again the imperfections outlined are not inherent in the crop-share lease but grow out of special customs that develop around the lease. The perfect crop-share lease would correct these through maintenance of the true cost structure for individual enterprises within the firm.

Livestock-share lease. Although there are numerous variations, the most common lease under this system of farm operation includes the following provisions: The landlord furnishes the real estate, the tenant furnishes the labor, power, and machinery and each bears the expenses directly related to his resources; each furnishes one-half the investment in productive livestock, feeds and stands the same relative share of the operating costs. The receipts are divided on a 50-50 basis (or other fixed proportion) for the business as a unit and ordinarily without regard to individual enterprise (except perhaps for poultry). This system has certain advantages over others in respect to efficient use of resources. The very nature of the lease tends to eliminate some of the imperfections which have been

²⁰ Many other instances in which custom has resulted in a bookkeeping transfer of costs between enterprises could be cited. In an earlier paragraph it was noted that investment in tiling to the extent of \$1 may be unprofitable if the landlord must split the added product of \$1.90 with the tenant under a one-half share rent. He may, however, attempt to regain the product so imputed to the tenant by charging a higher payment on hay land rented for cash. The expected outcome is again that of Situation III.

discussed: (1) The tenure is ordinarily for a longer period. Uncertainty thus tends to be less. (2) The division of marginal costs and returns for such semi-durable resources as fertilizer and lime is of a nature to make the optimum combination of resources profitable for a given crop. Landlord and tenant each receive one-half the return and split costs in the same manner. (3) There is less tendency for rationing of durable resources. The landlord receives the marginal return on buildings direct in the form of a share of the livestock. In addition the role of the landlord in the contract makes available a still greater quantity of capital because (a) his funds are used and (b) credit institutions may loan more to the tenant because of the presence of the landlord in the operations.

This lease is sometimes looked upon more nearly as a business partnership than are other leases. However, the return imputed to either the tenant's or landlord's resources can properly be looked upon as the cost of these resources to the firm when considered from the standpoint of either party separately. Although this system of leasing has characteristics which facilitate efficient use of resources, an equitable division of the product or the best use of resources is not always inherent in typical arrangements. In reality, this is an over-all lease which results as a livestock lease is superimposed on a modified crop-share lease. Thus the over-all lease is inequitable in any instance when the crop-share component is out of line.

There are reasons why a livestock-share lease might not result in a perfect allocation of resources within the firm. Ordinarily the receipts are divided in fixed proportions for the business as a whole without regard to individual enterprises. When there is more than one enterprise and the combination of inputs differs between enterprises, this arrangement may again have the effect of distorting the structure of costs within the firm. This is illustrated by the hypothetical data of the Table. Columns 1 and 2 show the dollar quantities of resources actually transformed into product (column 6) and furnished by the tenant and landlord respectively. (The total resources transformed is equal to the value of the product and while allowing "normal" returns does not result in any "pure" profits). The contribution of each party and the division of product for the business as a whole are parallel. Under the somewhat common definition this arrangement would be considered equitable; each party is rewarded in proportion to his contribution to the business as a whole. However, the arrangement distorts the structure of

costs within the firm. (Column 2 can be considered the true cost of the landlord's resources from the standpoint of the tenant or column 1 is the true cost of tenant's resource to the landlord. The bookkeeping cost of the landlord's resources to the tenant is represented by column 3.) From the standpoint of the tenant, the bookkeeping system results in a cost transfer of \$300 from enterprise *A* to *C*. (The opposite holds when the farm is considered from the landlord's viewpoint.) (Enterprise *B* is not affected since the division of input and output coincides with that for the business as a whole). What are the expected effects of this cost transfer on the organization of resources? Perhaps the provisions of the lease freeze resources so that neither the tenant or landlord can shift the farm organization. Yet the tenant will be prone to expand or improve enterprise *C* and contract *A*. The landlord may attempt to divert resources in the opposite direction.

It is of course true that many decisions are made jointly under the livestock-share lease. However, an imperfect allocation of resources may still result. If the number of tenants is greater than the number of farms available for rent, one would expect the organization under a livestock-share lease to be in the direction of dairy or other enterprises for which labor requirements are high.²¹ A tenant with the upper hand might push for a beef cattle enterprise since the landlord's contribution (land) is relatively great. Even though the two parties have agreed upon a given organization, the tenant still has some flexibility; he can divert a disproportionate amount of labor and care to those enterprises for which he stands to gain relatively more from increased efficiency. Deviation from the typical is not uncommon under the livestock-share leases. The receipts for a dairy farm may be divided 50-50, but the landlord may furnish part of the machinery to offset the tenant's disproportionate contribution in the form of labor. Yet the arrangement still represents a bookkeeping transfer of costs from one enterprise to another. Even if the organization is fixed in respect to cow numbers or crop acres, it may still be more profitable for the tenant to allocate his resources such as to increase his efficiency in "crop" production relative to that in "dairy" production.

²¹ That the livestock organization under the stock-share lease leans in the direction of dairy cows or feeder cattle, for which the contribution of resources by the tenant is relatively great, is indicated in the following study. Paul A. Taylor, *Organization of Iowa Farms Operated Under the Stock-Share Lease*, Unpublished M.S. Thesis, Ames, Iowa, 1932.

Enterprise	Value of resources furnished by			Percent of resources furnished by		Total product	Product "paid" to landlord	
	Tenant	Landlord	Total	Tenant	Landlord		Percent	Dollars
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A	300	900	1,200	25	75	1,200	50	600
B	600	600	1,200	50	50	1,200	50	600
C	900	300	1,200	75	25	1,200	50	600
All Enterprises	1,800	1,800	3,600	50	50	3,600	50	1,800

This imperfection would not hold under a perfect lease. In order that an equitable division of the product between resource owners and the true structure of costs within the firm be maintained, the lease would provide that the share of inputs conform more nearly to the share of the revenue for each enterprise rather than for the business as a whole.

Summary

In this paper an attempt has been made to analyze some common leasing customs. Because of the limited treatment certain omissions have been necessary. Yet it has been possible to point out the defects of many accepted leasing provisions. These imperfections are not, however, inherent in leasing systems, but arise because of the special customs which have developed and tend to be perpetuated over time.

Unfavorable comparisons between farm ownership and tenancy has often resulted because analysis has stopped with the isolation of imperfect leasing customs. Yet in theory perfect leasing systems are possible. The use of resources by the individual firm might thus be as efficient when the control is by lease as when the control is by ownership.

Similarly, the same degree of farming efficiency should be possible irrespective of the type of lease. In terms of theoretically perfect leasing systems it should make no difference whether the contract is of a cash, crop-share or livestock-share nature. All should result in an identical combination of resources were each "perfect." Differences in farm organization and efficiency stem not from different leasing systems per se but from the special customs which have grown up around individual leasing systems.

WARTIME DAIRY POLICIES

RICHARD J. FOOTE

Industrial Commodity Corporation

A REVIEW of wartime dairy policies from 1941 through July 1946 provides a particularly good example of the function of price as a regulator of production and consumption and of the complications which are introduced when prices are set by administrative action. This paper deals particularly with the way in which production adjustments in the dairy industry were achieved from 1941 through 1946 and with the methods adopted to obtain products needed to meet military and Lend-Lease requirements.

Background Material

Several aspects of the dairy industry need to be considered in appraising the wartime Government programs. The most important of these are:

- a) The stability of total milk production.
- b) The large proportion of the total milk supply used for fluid milk and for butter.
- c) The concentration of production of certain manufactured products in a few states.
- d) The substantial amounts of non-fat milk solids which normally are used for livestock feed or wasted.

From 1924 through 1940 total milk production increased steadily by an average of about 1 percent per year except for brief periods following major droughts. However, the largest increase from one year to the next was 3.7 percent and the largest decrease was 2.8 percent. The relative constancy of production grows out of the high fixed investment in mature cows, the low reproduction rate, and the large increase in rate of feeding required to bring about a small increase in milk production per cow.

During 1935-39 an average of 43 percent of the total milk production was consumed as fluid milk and cream and 33 percent of the total available fat solids were manufactured into butter. Thus these two groups of products accounted for 76 percent of the total available fat solids. Price relationships in the dairy industry normally are at such a level as to make fluid milk and cream the most profitable use for milk, with remaining products in the order:

1. ice cream,
2. dried whole milk,
3. evaporated milk,
4. cheese or the combined value of butter and non-fat dry milk solids,
5. butter as such with the skim milk used for casein, livestock feed or wasted.

Principal products for which increased production was needed during the war period were American cheese, evaporated milk, and non-fat dry milk solids. The percentage of the total U. S. production of these products during 1940 which was produced in Wisconsin was 52, 32, and 24, respectively, and in the East North Central States was 67, 56, and 38, respectively. Of the total non-fat milk solids produced in Wisconsin in 1940, 28 percent was used for these three products, with the bulk of the remainder going into fluid milk and ice cream, whereas for the United States as a whole only 10 percent was used for these items. Thus the problem of bringing about shifts in utilization of milk was complicated by a lack of plants in areas where milk could readily be shifted and a lack of milk in areas with ample plant capacity. The substantial seasonal variation in milk production intensified the problem.

During 1940, 46 percent of the total non-fat milk solids produced were used for livestock feed, industrial purposes, or wasted, while only 3 percent of the total fat solids were so used. The major item accounting for the high proportion of non-fat solids used for non-food purposes was the 40 billion pounds of skim milk and butter-milk remaining on farms from butter made on farms or farm-separated cream sold or consumed. The principal means of making these non-fat milk solids available for human use was by decreasing sales of farm-separated cream and increasing sales of whole milk sold at wholesale.

Production Adjustments in 1941

On March 15, 1941 the Department of Agriculture began to purchase substantial quantities of American cheese, evaporated milk, and non-fat dry milk solids for shipments to the British under the Lend-Lease Act. On April 29 a 6-8 percent increase in milk production was requested. At the same time it was suggested that a larger than normal proportion of the total milk supply be used for cheese and evaporated milk. On June 4 an increase of one-third in American cheese production and of one-fourth in evaporated milk

production was suggested. The requested 6-8 percent increase in total milk production was ample to permit such increases for these two items. Because of the tight shipping situation a shift in British requirements was made in the fall of 1941 from evaporated milk to non-fat dry milk solids. An increase of 40-50 percent in the production of non-fat dry milk solids was requested on November 22.

Government purchase prices for American cheese, evaporated milk and non-fat dry milk solids were increased rapidly from February through September 1941. Butter prices rose contra-seasonally from January through May but then leveled off until the spring of 1942. There was little economic reason for a rise in butter prices since most of the increase in demand was for other products, and milk production increased sufficiently so that increased production of the other products had little effect on butter production.

Total milk production increased from 109 billion pounds in 1940 to 115 billion pounds in 1941, or 5 percent. This was by far the largest percentage increase in a single year for the 17 years for which data were available. Cow numbers increased by 3 percent, reflecting mainly the relatively large number of heifer calves saved in previous years due to high prices for milk cows. Milk and butterfat prices were high relative to feed prices and farmers fed 13 percent more grain per cow than in the preceding year. As a result, milk production per cow increased 2 percent. American cheese production increased 25 percent; evaporated milk, 32 percent; and non-fat dry milk solids, 14 percent. Butter production increased 1 percent over 1940.

Production Adjustments in 1942

1942 goals announced by the Department early that year called for an increase above the previous year of 9 percent for butter, 17 percent for cheese, 25 percent for condensed and evaporated milk, and 50 percent for non-fat dry milk solids for human consumption.

To encourage production of non-fat dry milk solids the Department reduced its buying prices for American cheese and evaporated milk during February and March of 1942. This had the effect of raising the combined value of butter and non-fat dry milk solids relative to the other two products. On March 28 the Department announced that it would support the price of butter at 36 cents (92 score at Chicago), $1\frac{3}{4}$ cents above the previous support level.

This action had a similar effect. To further encourage production of *spray-process* non-fat dry milk solids, prices in mid-May were raised by $\frac{3}{4}$ cent per pound or about 6 percent.

In early June a substantial curtailment in production of evaporated milk was requested. Because of the shortage of shipping space, the Allied Nations had taken only 14 million cases of the 22 million cases originally requested by them for the year ended in March 1942, while the Department had purchased 37 million cases. Requirements for the fiscal year 1942-43 were estimated at 7 million cases. Moreover, the rate of production was over 40 percent above total domestic, military and foreign needs. At the same time it was stated that current production of American cheese and total non-fat dry milk solids was adequate to meet total needs but that some further increase in *spray-process* non-fat dry milk solids was needed.

On July 21, 1942, downward adjustments in Government buying prices were announced for evaporated milk and roller-process non-fat dry milk solids, while prices were raised for *spray-process* non-fat dry milk solids, butter, and American cheese. Under both the old and the new price schedules, with normal manufacturing margins, production of butter and either form of non-fat dry milk solids enabled manufacturers to return the highest prices to producers for milk not required for fluid consumption. The principal effect of the price changes on non-fat dry milk solids was expected to be a shift in domestic consumption from *spray* to roller-process powder. *Spray* powder was needed for lend-lease purposes because of its high degree of solubility.

Total milk production in 1942 increased to 119 billion pounds, 3 percent larger than in 1941. As in the previous year, most of the increase was due to a larger number of cows. Prices paid for milk and butterfat in relation to feed prices continued unusually favorable. Production of all major dairy products other than butter increased substantially. Increases above the previous year were 22 percent for American cheese, 8 percent for evaporated milk (despite a large reduction in the rate of production in the last half of the year), 70 percent for nonfat dry milk solids for human consumption, and 19 percent for ice cream. Butter production, however, declined by 6 percent.

Price Ceilings for Manufactured Dairy Products

During both 1941 and 1942 material shifts in the utilization of

milk were brought about by the comparatively simple method of varying relative prices. The establishment of price ceilings for manufactured dairy products on October 5, 1942, made it impossible to bring about further adjustments in production and civilian consumption of individual products by this method.¹ Space does not permit a detailed discussion of the price ceiling regulations as such. The complex restriction, limitation, set-aside, and subsidy programs required to meet military and lend-lease needs for particular dairy products, however, will be discussed in the following sections.

*Allocation, Limitation and Set-Aside Orders on
Manufactured Dairy Products*

The first order designed to restrict civilian consumption of dairy products to meet military and lend-lease needs was issued on November 2, 1942. This required manufacturers of spray-process non-fat dry milk solids to set aside 90 percent of their production for Government purchase. The speed with which other similar orders were found necessary is indicated by the fact that by June 3, 1943, orders having a similar purpose had been issued for all major dairy products except fluid milk and evaporated milk. Before the end of the war, such orders were issued for virtually all dairy products. To simplify the presentation, these orders will be discussed by products rather than chronologically.

Butter—During the fall of 1942, butter production was several percent under a year earlier and, with prices held at ceiling levels and rising consumer incomes, butter began to move out of storage very rapidly. By mid-November storage stocks had reached a low level and supplies were considerably short of demand. To meet immediate lend-lease needs for butter, the Government on November 20, 1942, froze half of the supply of butter on hand in the principal storage markets of the country for purchase by specified agencies. This order made roughly 20 million pounds of butter available to meet immediate needs. Effective February 1, 1943, manufacturers were required to set aside 30 percent of their monthly production for sale to various Government agencies. The percentage required to be set-aside was varied from time to time,

¹ The establishment of price ceilings for fluid milk and cream and ice cream in March 1942 had little immediate effect on the dairy industry except to encourage a high rate of consumption. Prices already were sufficiently high to attract as much milk as needed into these uses.

with the highest figures prevailing during the spring and summer when production reaches its seasonal peak. The set-aside rate equalled 50 percent in June of some years and generally was set at zero during the six winter months. The set-aside order met Government requirements effectively, but civilian supplies were extremely short, particularly in the fall and winter months. Set-asides were discontinued after June 1946.

American cheese—Because of increased production, stocks of cheese in the winter of 1942-43 were much more adequate than for butter. However, beginning in February 1943 manufacturers were required to set aside 50 percent of their production for purchase by specified Government agencies. As with butter, this figure was varied seasonally, reaching a peak of 70 percent in May-July 1943 and dropping to 25 percent in November-December of 1943 and 1944. At least 80 percent of the cheese set aside was required to be of No. 1 quality or better. High quality cheese was required to withstand shipping conditions. No cheese was required to be set aside after July 1946.

Nonfat dry milk solids—As mentioned above, manufacturers were required to set aside 90% of their spray-process dry milk solids for Government purchase in early November 1942. This product was urgently needed for lend-lease and military use for reconstitution for drinking purposes, as production of dried whole milk, a more difficult product to manufacture, was relatively small. Some roller-process powder was released from Government stocks during the winter months to manufacturers furnishing spray-process powder to the Government. On June 1, 1943, this order was extended to roller-process powder but the percentage was reduced to 75%. By May 1944 production had increased sufficiently to reduce the set aside to 50%. The roller-process order was discontinued after August 1944 but the spray-process percentage was held at 40% until July 1946. The reduced percentages reflected increased production of non-fat dry milk solids and a shift in military demand to dried whole milk, production of which increased very rapidly during 1944.

Condensed and evaporated milk (case goods)—During 1943 production of evaporated milk in 14½-ounce cans for civilian use was limited to 90% of the 1942 peak and of condensed milk in 15-ounce cans to 100%. Similar limitations were continued throughout the war. These regulations were designed to save tin but also had the

effect of releasing milk for use in other dairy products. A voluntary set-aside program for evaporated milk was in effect during most of the war years. A relatively few major companies process evaporated milk and hence a voluntary program was feasible, but it was also favored by the existence of tin restrictions on evaporated milk for civilian use and by relatively high returns on Government sales compared with civilian sales—factors which were different from those encountered by the several thousand firms making butter and cheese.² During the winter of 1942–43 the Government released some stocks to the trade to alleviate the civilian shortage.

Ice cream—Consumption of ice cream on a volume basis is highly correlated with consumer income. With high consumer purchasing power, the ice cream which consumers would have liked to purchase at relatively low ceiling prices increased tremendously during the war. Milk solids used in ice cream after December 1942 were limited to a given percentage of production in an earlier period. Both the base period and the percentages were varied from time to time, but in 1943 milk solids used in ice cream for civilian consumption were limited to 65% of the amount used in the corresponding month of the period December 1941–November 1942. The fat content was reduced by more than the non-fat milk content but reduction in both were required by the order. Manufacturers were permitted to increase production during the summer months in certain years when it appeared that total milk production would be larger than available processing facilities for other dairy products. Due to the shift in production to frozen products containing a smaller percentage of milk solids, and to production for domestic military use, total ice cream production was reduced by less than 15% below the peak level reached in 1942. However, production for civilian use in 1943 was 25% less than in 1942. Provisions covering the use of non-fat milk solids in ice cream were discontinued in August 1944 and of fat solids, in September 1945.

Dried milk products—During 1943 production of dried milk products made partly from whole milk, including prepared ice cream mix, increased rapidly. As both equipment and milk solids were being diverted to the production of products not essential to the war effort, domestic sales of dried milk products made entirely or partly from whole milk were limited to 75% of the quantity sold

² A compulsory order was put in effect in June 1946 but no set-asides were required after that month.

in 1942 and of dried milk compounds, to 100%, effective in March 1944. This order was of especial value in obtaining more dried whole milk for the Army, which was needed particularly for reconstitution in the Pacific areas. Army and lend-lease purchases of dried whole milk increased from 35 million pounds in 1942 to 137 million pounds in 1945. Peak *production* in any year prior to 1941 was 29 million pounds.

Cheese other than cheddar—In prewar years the United States imported roughly 25% of the total cheese other than cheddar consumed here. Imports were reduced materially during the war, and price ceilings tended to favor the production of foreign types of cheese. Hence, production increased considerably, particularly during 1943. To maintain production of American or cheddar cheese, production of foreign types were restricted to the same amount as produced in 1942, effective in February 1944.

Rationing Programs

Only brief mention will be made of rationing programs here as they were ostensibly designed to secure an equitable distribution among various civilian groups rather than to obtain products for military or lend-lease use. Butter and cheese rationing was begun in March 1943 and continued until the fall of 1945. Because the cut in civilian butter consumption was so great and the amount of cheese per capita to be rationed was so small, neither program was particularly successful. A successful rationing program is assumed to be one that holds black market activities to a minimum, that permits all holders of coupons to purchase the product, which assures products to meet essential needs, and which requires a more or less equal sacrifice from all groups of users for which the product is not essential. Butter and cheese rationing failed to meet some of these tests, largely because of the inherent difficulties connected with the products as such and the fact that they were only part of an integrated rationing system that suffered a serious decline in quality of administration.

Rationing of evaporated and condensed milk became effective in June 1943. The program was designed to conserve limited supplies for infant feeding and special diets and for persons unable to obtain adequate supplies of fresh milk. Unlike most rationed products, supplies of canned milk were fully adequate to meet all civilian

requirements at the time the program was started. However, because of the seasonal nature of production, supplies would have been inadequate to meet even essential needs in the 4th quarter of 1943 had the high rate of consumption in the first two quarters been continued through the 3rd quarter. This program was for the most part successful.

Allocation orders for industrial casein and lactose also were in effect. Casein production was cut to about a third of normal during the war because of the diversion of skim milk to the production of non-fat dry milk solids. Imports from the Argentine were larger than normal but did not offset the decline in domestic production. In May 1943 essential users were limited to specified percentages of either rationalized requests or historic use, depending on the nature of the consuming industry. Demand for lactose increased materially during the war, particularly for the production of penicillin. Although production more than doubled, use was restricted from April to September 1944 to assure sufficient supplies for penicillin production. By the latter date production had increased sufficiently to meet all needs.

Limitation Orders on Fluid Milk and Cream

Although total milk production increased rapidly between 1940 and 1942, the rate of production, after allowing for normal seasonal variation, began to decline in the latter half of 1943. Consumption of fluid milk, on the other hand, was steadily increasing. Since roughly 46% of the total milk production in 1943 was utilized as fluid milk and cream, this resulted in a substantial squeeze on production of manufactured dairy products. It also caused intense competition for supplies among fluid milk dealers, particularly in highly populated areas during the fall low-production season. To assist in preventing a further rise in fluid milk consumption and to avoid direct consumer rationing which was considered impracticable, a system of dealer quotas in individual markets was established effective in September 1943. Quotas were established first in areas of heavy urban population where milk supply problems were most critical. Administrative expenses were met by assessments on the milk handlers for whom quotas were established, a unique basis for an order of this type so far as the author knows. In most areas, quotas for fluid milk were set at the June 1943 level, but quotas for

cream and milk by-products were reduced below that level when total milk supplies were short.³

It is doubtful whether orders of this type would have been successful had it been necessary to bring about much of a decline in fluid consumption. However, total milk production increased in 1944 and 1945, under the stimulus of subsidy payments, so that a slowing-down in the rate of increase in fluid consumption was sufficient to meet production requirements for manufactured dairy products. The major value of the orders probably was in evening out distribution in the so-called deficit milk markets during the late fall months.

Programs to Stimulate Total Milk Production

Because milk production cannot be changed by more than a few percent from one year to the next, a major part of the total wartime Government program for the dairy industry was concerned with bringing about shifts in the utilization of milk. However, increases in total milk production in the right areas made the obtaining of these shifts easier and hence was important.

Throughout the war farmers were urged to produce as much milk as possible, but they were not always given economic incentives to encourage them to do so. Dairy goals represented a compromise between the amount of milk needed to meet all requirements and the amount of milk farmers were expected to produce and, as such, were of little importance.⁴ Mention already has been made of the increase in production brought about by high prices in 1941 and 1942.

Space does not permit a detailed discussion of general programs to stimulate production of feed, to allocate grains and high protein feeds between various users, to make machinery and equipment available to farmers, and to increase the supply of farm labor. Many of these programs were designed to be of especial benefit to dairymen. The orders allocating oilcake and meal and Selective Service regulations covering farm labor were of particular importance in maintaining milk production.

³ Sales of heavy or whipping cream were prohibited from Nov. 1942 until Sept. 1945 to conserve fat for the production of other dairy products. A similar order was reimposed during the summer and fall of 1946.

⁴ Goals were of considerable value in determining the best use of available total resources. However, since as much milk as possible was desired, they were of little importance so far as milk production was concerned.

During the fall of 1943 dairymen were unable to obtain as much corn and other feed grains as they would have liked to purchase because of the combined effects of ceiling prices for corn and the high support level for hogs. Under these conditions corn producers in the Mid-West could secure materially more by feeding the corn directly on their farms than by feeding it to other types of livestock or selling it on the market. The shortage of feed for dairy cows was particularly severe in deficit areas on the East and West Coast. Pork production expanded by 41% between 1941 and 1943, while milk production in the 4th quarter of 1943 probably would have dropped to an annual rate of around 115 billion pounds without the subsidy program discussed below.

In October 1943 a general subsidy program for milk producers became effective. Payments varied by regions according to the amount of feed purchased and initially ranged from 30 to 50¢ per hundredweight for whole milk and from 4 to 6¢ per pound for farm-separated butterfat. Payments were made by county AAA committees upon application by milk producers. As price ceilings for dairy products contained no seasonal adjustment, subsidy rates were varied seasonally. During 1943 and 1944 the relative subsidy payment rates for whole milk and farm-separated butterfat encouraged farmers to increase sales of whole milk at wholesale. Returns on butterfat in farm-separated cream were later increased by legislation intended to reduce the apparent inequities confronting farm-separated cream producers and incidentally to protect butter production. A rise in the price ceiling for corn and a reduction in the support price for hogs during 1944 also encouraged increased milk production by making more feed available to commercial dairymen. Subsidy payments were continued until price ceilings were terminated on July 1, 1946.

The combined effects of these programs reversed the downtrend in milk production in the fall of 1943 and resulted in an increase in production to 122 billion pounds in 1945. The seasonal variation in subsidy payments tended to prevent a substantial shift to heavy spring and summer production which would have been encouraged by the constant price ceilings on dairy products. Perhaps most important, however, was the increased sales of whole milk at wholesale obtained by the higher payments for butterfat in whole milk than for butterfat in farm-separated cream. Of the total increase of 22.6 billion pounds milk equivalent in non-fat milk solids available

for human consumption between 1940 and 1945, 55% may be attributed to increased production of total milk and 45% to a shift from selling farm-separated cream to selling whole milk at wholesale and other means of reducing non-food uses. The latter was achieved at a fraction of the cost of the former in terms of either money value or physical resources.

Other Programs

Space permits only brief mention of other programs affecting the dairy industry. Subsidies were paid on American cheese and butter and to handlers of fluid milk in specified markets during certain periods. Substantial aid was given to dairy processors in obtaining new and replacement equipment for manufacturing and handling milk and dairy products. Every-other-day home delivery of fluid milk was required by the Office of Defense Transportation and may have a lasting effect on the dairy industry. All of these were important in themselves but they are not essential in outlining the types of developments discussed here.

Conclusions

On the whole, the wartime dairy program (particularly that part administered by the U.S.D.A.) was handled effectively and efficiently within the limitations imposed by the nature of the industry and the general administrative policy of maintaining relatively fixed price ceilings. Some of the programs could have been simplified had the general subsidy program been started a year earlier, as was repeatedly suggested by the U.S.D.A. Dairy Goal Committee. Part of the delay was caused by internal dissent within the Department as to the type of subsidy program which should be used. Also an earlier emphasis on the need for a shift from sales of farm-separated cream to sales of whole milk at wholesale by farmers would have been helpful, but to some extent such a program had to be delayed until new processing plants could be built in areas where a shift was feasible. The Department is to be commended for using in most instances the simplest type of program which could be expected to bring about the desired results. The tremendous shifts in the utilization of milk and the expansion in production of certain items which took place would have been considered impossible to obtain by most dairy economists before the war.

THE 1945 CENSUS ENUMERATION OF LIVESTOCK ON FARMS

C. L. HARLAN
Washington, D. C.

THE Bureau of the Census made its third quinquennial Census of Agriculture in 1945 and began releasing records by States about the middle of 1946. But the final totals for the United States were not published until March 1947. A detailed appraisal of the 1945 Census as to its completeness and general comparability with previous censuses is not made a part of this paper. One conclusion, however, seems well supported. This is that these quinquennial censuses of Agriculture taken in 1925, 1935, and 1945 are more complete and more comparable than the decennial censuses taken as a part of the over-all censuses, which cover population, business, manufacturers, vital statistics and other subjects as well as agriculture.

The conditions under which the 1945 Census of Agriculture were taken were doubtless the most unfavorable that have confronted the Census Bureau in the present century. Because the country was at the peak of its war effort, there was considerable doubt as to whether a census enumeration should be undertaken, and the final decision was not made until late. This gave a very limited period for perfecting the plans, organizing a force of supervisors and enumerators, and building up a clerical and technical staff in Washington. The date chosen for the enumeration, January 1, tended to shorten the time for preparation and to enhance the difficulties that were being encountered. As a result, the enumeration was late in getting under way and because of manpower shortages and inefficiencies it made very slow progress. Except in a few States the enumeration extended over the first six months of 1945 and in some States it was not completed until late in the year.

In order to determine the average date of enumeration a sample of enumeration districts, by counties, was selected and tabulated, which gave an indicated average date by States and for the United States. This tabulation showed that for the earliest State the average date was about February 15, for the latest May 10, with the average date for the United States March 23. There were several unusual features in the taking of the 1945 Census that might be

mentioned. One of these was the type of schedule used. In all previous enumerations separate schedules were obtained for each farm and the editing was done by individual schedules. In recent years when tabulating machines have been used, all the data on each schedule were punched on individual cards. For the 1945 Census the information was collected by using books in which the questions were at the heads of columns and a separate line was given to each farm. Each book had lines for 25 farms (20 farms in Southern States). The editing was done in the books and the crop and livestock totals for the farms in each book were obtained by adding the items in each column. Except for sample farms and specified large farms, the crop and livestock information for each farm was not punched on cards. It had been expected that this book method would materially reduce the work of tabulation and make possible a much earlier completion of county and State totals. The delay in enumeration and other circumstances, however, did not make possible a fair comparison between this method and the one formerly used.

Another notable feature of the 1945 Census was the collection of a large variety and volume of information on a sample basis. This was a far departure from views formerly held by Census authorities that all items had to be included on all schedules. For this sample enumeration, the farms included in the "master sample," which had been drawn the previous year at the statistical laboratory at Ames operated jointly by the Department of Agriculture and Iowa State College, were used.¹ Separate books were prepared for the sample farms which included all the questions on the regular schedule followed by all the questions for which sample returns were to be collected. Among the more important items on the sample schedule were the detailed classifications of different species of livestock. It had originally been planned to tabulate the farms in the master sample first and on the basis of these results to make preliminary estimates of United States, regional and, in some instances, State totals of various items included in the schedule. But the delay in enumeration affected the sample farms as well as others and it was found impracticable to carry out this plan.

The delay in making the enumeration tended to affect adversely

¹ For a detailed description of the master sample and the methods and techniques used in selecting it, see *Journal of American Statistical Association*, March 1945, Vol. 40, pp. 38-56.

the accuracy and comparability of much of the census data. It was particularly serious for inventory items and especially items that change materially as the seasons change. There is considerable evidence to indicate that the longer the interval between the time when the questions are asked and the period to which they relate the less exact will be the answers. For such items as acreage and production of crops, income and expense information or other economic data that relate to the previous year, answers obtained in early January may be but little different from answers obtained in late March. But in the case of livestock on farms as of a specific date, January 1, 1945 in this instance, a material difference can be expected between the information obtained if the enumeration is completed within a few weeks of the enumeration date and that obtained if the enumeration is spread over the six-month period following the enumeration date.² Available evidence indicates that, regardless of the date to which the enumeration is to apply, in most cases the answers given cover only livestock on the farm at the time of the enumerator's visit. Furthermore, the classification by ages reflects the ages at the time of enumeration. Hence a greatly delayed enumeration as of January 1, coming at a time when there is a heavy movement of livestock from farms and when the age classification of large numbers of different species is changing, cannot be expected to obtain the actual numbers as of January 1.

The Department of Agriculture makes estimates of the number of the different species of livestock on farms as of January 1 each year and undertakes to maintain a consistent and comparable series of such numbers over the years. Since, however, the Department has neither the authority nor facilities for making complete enumerations, it depends on the periodic enumerations of the Census Bureau for bench marks from which to project these estimates and for the basis for revising estimates already made. Because it was apparent that the livestock numbers obtained by the 1945 Census enumeration were not accurate figures for January 1, 1945, a thorough study and appraisal of the Census figures was necessary before they could be used as bench marks for estimating purposes. The balance of this paper is devoted largely to a description of this appraisal and the final results obtained by it.

² For a detailed discussion of the effects of changing dates of enumeration on the comparability of livestock censuses, see the processed bulletin—*Livestock on Farms, Revised Estimates 1867-1935*—issued by the Department of Agriculture in 1938.

The study and appraisal of the 1945 Census livestock enumeration was made by States. This work was done largely in the offices of the State statisticians of the Agricultural Estimates branch of the Bureau of Agricultural Economics (formerly Crop and Livestock Estimates). As the Census figures by counties and States became available, representatives of the Livestock and Poultry Division from Washington visited the various State offices and worked with the State statisticians. They reviewed the Census information by counties and districts, making comparisons with previous censuses and with indicated numbers from other sources. Numbers of the various species for January 1, 1945 were arrived at and were sent to Washington for further review. The final review was made by the Livestock Board in early February 1947 and the adopted estimates were published as a part of the Livestock on Farms Report issued by the Crop Reporting Board on February 18, 1947. The following table shows the results of this study and appraisal.

NUMBER ON FARMS, JANUARY 1

	1945			1940	
	Census ¹	Original estimate	Revised estimate	Census ²	Estimate
	Number	Number	Number Thousands	Number	Number
Horses	8,499	8,841	8,715	10,087	10,444
Mules	3,130	3,405	3,235	3,845	4,034
All cattle	82,654	81,909	85,573	60,675	68,309
All cows	44,156	42,081	44,226	33,523	35,616
All hogs	46,735	59,759	59,331	34,037	61,165
Spring sows	8,482	9,212 ³	9,223 ³	7,988	9,413 ³
Spring sows	—	8,187 ⁴	8,298 ⁴	—	8,247 ⁴
All sheep	41,224	47,780	46,520	40,120	52,107
All ewes	30,632	37,244	36,062	35,580	42,638

¹ January 1.

² April 1.

³ On farms January 1.

⁴ Farrowed spring season.

It is obvious from the above table that the Census figures were not accepted as being the number of livestock on farms on January 1, 1945. In 1940 when the Census enumeration was as of April 1, the Census schedule was worded to eliminate young animals born within a given number of months before the date of enumeration—this number of months varying as among species. Hence the differences for 1940 between the Census figures and the estimates are

largely allowances made for disappearance of animals that were on farms January 1 but gone at the enumeration date. Evidence as to this disappearance was derived from sample farms reporting to the Department on the number of different kinds of livestock on January 1, 1940 and about April 1, 1940 and from records of marketings and slaughter and estimates of death losses during the first 3 or 4 months of the year. For 1945 no such sample data could be obtained since there was no way to determine in advance what the average date of enumeration might be in different States and the Census schedule asked for numbers of livestock on January 1. Thus the difference between the Census figures and the revised estimates for 1945 are judgment figures that represent the differences between what the Census reported and the number that would have been enumerated as on farms and ranches on January 1 if the enumeration had been made within a relatively short period after that date. The basis of these judgment allowances for each species of livestock will be considered in some detail under the heading of the respective species.

Horses and Mules: There was less uncertainty as to what might have been enumerated in the case of horses and mules than with other species of livestock. This arises from the fact that the colt crop in 1945 was very small in relation to the number of animals on farms January 1, 1945—less than 3 percent for each class—and the total disappearance of horses and mules from farms in any year is only a relatively small proportion of the number on farms at the beginning of the year. Hence the number of 1945 colts that might have been included in the enumeration in the months after March could not have been large and had little effect on the number reported.

Records of marketing of horses and mules by States are much less complete than the records for other livestock. In most years the marketings represent largely a movement from farms in one State to farms in other States and do not greatly affect the change in the U. S. total. In 1945 there was a fairly large slaughter of horses but slaughter is a relatively small item in total disappearance. The principal item of disappearance of horses and mules is death losses, and these were relatively large in 1945.

The Census schedule asked for "All horses and colts, including ponies, January 1, 1945" and "All mules and colts, January 1, 1945." It seems probable that the number around January 1 was

reported by farms enumerated during January and February. But in March and subsequent months the general tendency was for the enumerator to ask for the number of horses and mules on the farm and for the farmer to report the number at that time. Assuming this to have been the case, the principal problem was to arrive at some allowance for disappearance between January 1 and the enumeration dates in the different States. In States where there are dependable and comparable records of horses and mules assessed, such records were used to measure the change in numbers between 1935 and 1940 and 1945. These measurements were compared with the Census changes between these periods and thus furnished an indication as to whether the 1945 enumeration was too small.

The sums of the revised State estimates gave totals for the United States for both horses and mules that were above the Census totals but below the original estimates for 1945. Compared with the original estimates the change in horses is mostly in the number of horses two years old and over with little change in either class of colts—1 to 2 years and under 1 year. Because of the delay in tabulating the classification items on the sample segment schedules, only partial and preliminary figures were available at the time the revisions were made. These partial figures tended to support the conclusion that the delay in the enumeration would seriously affect the dependability of the classification of all livestock. This was shown by the small number of colts under 1 year in relation to colts 1 to 2 years and the small proportion of all colts to horses over 2 years old. Apparently for most of the farms enumerated after the beginning of March, colts that were 1 to 2 years old on January 1 were included with horses 2 years old and over; colts that would have been under 1 year on January 1 were reported as colts 1 to 2; and many of the colts reported as under 1 year were 1945 colts born in the spring of that year.

Most of the adjustments in estimates of mule numbers were also in the number of animals over 2 years with little change in colts. The decrease from the original estimates was largely in the numbers in the Southern States, with the largest relative and actual decrease being in the total for the South Central States.

Cattle: The effect of the delay in the enumeration on the dependability of the Census figures was probably more difficult to appraise in the case of cattle than of any other species. There is a large disappearance of cattle and calves that were on farms January 1 in each

month during the first half of the year. But this disappearance is not uniformly distributed among different classes of cattle producers. It is relatively the largest in States and areas where large numbers of cattle are fed for market and is smallest in those States and areas where cattle are marketed largely in the fall months—which includes much of the large scale, range type of cattle raising. However, there are localized feeding areas of considerable importance in all of the principal beef type cattle-producing States and there is a continuous movement of cattle culled from dairy herds and of 'butcher' type cattle from small herds for local slaughter and to market. There is also considerable difference among cattle growers in what number they might be expected to report at different periods. It is probable that range type producers as well as large scale cattle growers in all areas who do not keep an exact current count on the number of cattle in their herds would report the number when the last count was made (which would in most cases be around January 1) less any sales that might have been made. It would probably be well into spring before another count would be made. On the other hand, most farm type cattle raisers and cattle feeders would have current records of the number of cattle on hand at any particular time and most likely this number would be the number reported when the enumeration was made considerably after January 1. There is much uncertainty as to when and to what extent 1945 calves would be reported. Over a long period of years, experience in getting reports from farmers on numbers of cattle shows a rather marked tendency to omit calves unless a detailed classification is asked. The 1945 Census schedule asked only for all cattle and calves January 1 and all cows and heifers 2 years old and over on January 1. Information as to the average date of enumeration was available only on a State basis. Therefore, it was not possible to appraise county and district figures by using available information as to the kind of production and the disappearance to be expected. This would be of material importance in States where large scale cattle raising, farm type production and cattle feeding are all of relatively large volume.

Before the Census enumeration was made, persons in the Department of Agriculture who were using estimates of cattle numbers and the records of cattle and calf slaughter which became available as a result of war-time slaughter control, generally believed that the estimates of cattle numbers were too low. These slaughter records

were showing a much larger non-inspected slaughter of cattle and calves than had previously been estimated from available information. It was becoming increasingly difficult to account for such large slaughter within the limit of changes shown by the estimates of January 1 inventories. It seemed fairly certain that either the level of the estimates of cattle numbers and the calf crops were too low or that the increases in cattle numbers were too large or the decreases too small.³ Hence for several years there was a tendency in making the estimates of cattle on farms to take minimum increases—which were smaller than indicated by current sample data and smaller than indicated later by changes in the number of cattle assessed.

Various methods were used in arriving at indicated January equivalents of the 1945 Census cattle figures. One method was to estimate the disappearance of cattle, including calves born in 1944, between January 1 and the average date of enumeration, using market records and estimates of local and farm slaughter and death losses. From this total was subtracted the recorded inshipments of cattle during the same period and the difference was added to the reported Census number. Another method was to work out indicated numbers on hand each month by starting with the estimated number on January 1, 1945, adding to this an estimated number of calves born in January and recorded inshipments in January and subtracting from this sum the recorded marketings and estimated local slaughter and death losses during January. The resulting difference was the indicated number on February 1, 1945. In a similar manner the numbers on March 1, April 1, May 1, June 1, and July 1 were arrived at. Then the indicated number at the beginning of each month was multiplied by the percentage of farms enumerated in that month. The products were assumed to be the number of cattle that would have been enumerated in the different months. The sum of these products was the number that the Census presumably would have enumerated if the number on January 1 was about the number estimated and farmers had reported the number on hand about the first of the month in which they were visited by the enumerator. The relationship between this total and the estimated number on January 1 was then arrived at by dividing the

³ This situation was covered in some detail by the writer in a communication to the *American Cattle Producer*—the official organ of the American National Livestock Association—and published in the May 1945 issue of that publication.

total by the January 1 estimate. The reported Census number was then divided by this percentage and the quotient was the indicated January 1 equivalent of the census number. This method assumes that all calves would be reported about as dropped and that all farmers would report the number of cattle as of about the enumeration date, including these calves. As previously stated, however, both of these assumptions are questionable. This method, however, was useful in States where 40 percent or more of the farms were enumerated after April 1.

Another indicated January 1, 1945 number was arrived at in States where there is a dependable series of assessment data by multiplying the January 1, 1935 Census number by the change shown between that year and 1945 in the number of cattle reported for assessment. The 1935 Census enumeration was as of January 1 and is considered as giving the most dependable January 1 number of livestock of any of the censuses. In the case of cattle, the census number in 1935 was taken as the estimated number on farms January 1 in most of the States. There were, however, several western States where subsequent developments indicated that the 1935 Census totals were too small and the estimates were later revised upwards. The procedure assumes that the number of cattle returned for assessment bears a fairly constant relationship to the number of cattle actually owned. There is considerable variation among States as to the percentage of cattle returned for assessment, due, in part, to the extent to which previous year's calves are required to be reported. But importance of cattle in the farm operation is also a factor—the more important the cattle enterprise the smaller the percentage of cattle that will commonly be reported. In making these assessment comparisons in States where the assessment date is in the spring (usually March or April), the number returned for assessment is converted to a January 1 base by adding to this number the recorded marketings and estimated local and farm slaughter in the months between January 1 and the date of assessment. This adjustment is quite important in some States where there is a large volume of cattle feeding, and the number of head marketed during the adjustment period may vary materially in different years.

In some States allowance was made for incomplete enumeration where there was convincing evidence that in some counties or areas a substantial number of farms or ranches had been missed

by the enumerators. Such evidence might come from comparisons: 1) of the number of cattle assessed with the number enumerated; 2) of the number of farms enumerated for specific crops for which exact information was available from other sources, or 3) of changes in total land in farms, total crop land or number of farms as shown by the Census and as shown by other sources.

With all of these indications as to the number of cattle on hand on January 1, 1945, a tentative figure was agreed upon by the Washington representative and the statistician in the particular State. If the indications were in close agreement, the selection of a tentative number was fairly easy. Where they were quite divergent, a considerable element of judgment was injected. If the indicated number was reasonably close to the current estimate, it was the general policy to retain that estimate.

If the classification figures from the sample segments and large farms had been available at the time of the State reviews or even by the time the final estimates were adopted by the Livestock Board, they might have thrown considerable light on what was actually reported to the enumerators. The percentage of cows 2 years old and over shown by the over-all Census figures seemed too large in relation to all cattle when compared with sample reports to the Department of Agriculture and by assessment data in many States. The presumption was that after March 1 many of the heifers that were 1 year old and over on January 1 were reported as 2 years old. It also seems that this percentage would tend to be high if cattle marketed between January and the enumeration date were not reported to the enumerators since a relatively large proportion of these are steers from feed lots. Before the final figures were adopted, tentative classification percentages were obtained from the Census for a number of States. Unfortunately, in compiling these figures, the classification for the large farms was included with that from the farms in the sample segments. As these large farms included many large scale cattle feeding farms and a disproportionate number of large scale farms growing beef cattle, the figures were not at all representative of the actual over-all classification since they were overweighted by steers from the feeding farms and by beef cows from the beef cattle raising farms. The final revisions show about the same number of all cows 2 years old and over as reported by the Census—44,226,000 for the former and 44,156,000 for the latter. But as a percentage of all

cattle the revised estimates of cows are only about 51.6 percent of all cattle, compared with 53.4 percent shown by the Census and 51.3 percent by the original estimates.

Hogs: The Census schedule included 2 questions on hogs—All Hogs and Pigs, January 1, 1945, and Sows and Gilts for Spring Farrowing, January 1, 1945. No classification of hogs was included on the schedule for the large and sample segment farms. Because of the heavy marketings and farm slaughter of hogs that always occur during the first three months of the year, it was expected that the delayed enumeration would result in a reported number of all hogs that would be much below the number that were on farms on January 1. On the other hand, the late enumeration would tend to give a total for sows and gilts for spring farrowings closely in line with the number of sows that actually farrowed in the spring season of 1945, and less than the number on January 1. Thus the Census figure on sows and gilts should be one of the most dependable livestock items enumerated by the Census. It would not be affected by the tendency to shift age classifications as was apparent in the case of the enumeration of all cows.

Since hogs are raised and marketed largely as a 'crop,' there is a much closer relationship between hog numbers on January 1 and hog marketings in the months subsequent to January 1 than with other livestock. For States which have a fairly complete record of marketings by months and from which most of the hogs produced move through market channels, it is possible to establish a very good relationship between numbers and marketings. These comparisons have indicated that there is a marked tendency for farmers to report hogs on hand at the time of enumeration rather than numbers on January 1 in years when the Census has been taken as of January 1. Even in 1935 the Census figures of all hogs were raised in some States to allow for under-reporting of January 1 numbers. But in none of the other January 1 Censuses was the enumeration drawn out over such a long period of time as was that of 1945.

As the 1945 Census totals by States became available it was found that the number of all hogs reported was running materially below the numbers estimated for January 1, 1945, as had been expected. The number of spring sows, however, for most States was not greatly different from the number estimated by the Department as having farrowed in the spring season of 1945. The Department's estimates show two figures for sows and gilts for

breeding or farrowing. The classification of hogs on January 1 is shown as pigs under 6 months, sows and gilts, and other hogs over 6 months. The number of sows and gilts is based upon the reports from farmers as to the number of sows bred or to be bred for spring farrowing. The June pig crop reports show the estimated number of sows and gilts that farrowed during the spring season. This number is always smaller than the estimated number of sows and gilts shown in the January classification. In any year farmers as a whole breed more sows and gilts to farrow in the spring season, which covers the period December 1 to June 1, than actually farrow in that period. This difference is accounted for by marketings of sows, death losses, failure to get with pig, and premature births. In years when hog production is expanding, the spread between sows and gilts on January 1 and sows farrowed in the spring season is below average, and when hog production is declining it is above average. By March the effects of most of the factors that cause the difference between January numbers of sows and gilts and the number of sows that farrow in the spring season will have taken place. Thus if farmers in 1945 tended to report the number of sows and gilts for spring farrow on their farms at the date of the visitation, and the average date was the latter part of March, the number reported should be fairly close to the number that farrowed in the spring of 1945. Thus it would be comparable with the estimate of sows farrowed in the spring of that year.

As with other species, there is much uncertainty as to just what farmers reported to the enumerators as the date of visitation became further and further away from January 1. From such evidence as is available in some States it seems probable that there was little tendency to report new crop—born in 1945—pigs in the first three months of the year. After that period, however, there is little to indicate what may have been reported. In some States, especially the Southern States, where a relatively large percentage of spring farrowings occur in December through February, a considerable number of 1945 pigs may have been included in the later enumerations. And what was reported when the enumeration was made after June 1 can only be guessed. There was some indication that in some States June sows may have been included in the number of spring sows reported.

In 7 of the North Central States (Wisconsin, Minnesota, Iowa, North Dakota, South Dakota, Nebraska, and Kansas), there is a

further check on the Census enumeration of sows. In these States, as a part of the State farm censuses made each year by the assessors, information is obtained on the number of sows to farrow in the spring. These enumerations vary from January and February in Iowa to April and May in other States. The enumerations are used as a check on the Department's estimates of spring sows, and the original estimates of sows farrowed in the spring of 1945 in these 7 States were based largely upon the number indicated by these enumerations. The following table shows these assessors' enumerations, the Census figures, and the original and revised estimates for for these States.

SPRING SOWS, 1945
(In thousands of head)

	Assessors Enumeration	Census	Original Estimate	Revised Estimate
Wisconsin	297	328	315	315
Minnesota	618	668	669	669
Iowa	1,798	1,840	1,861	1,842
North Dakota	121	148	139	139
South Dakota	303	347	337	347
Nebraska	416	466	481	473
Kansas	159	187	203	187
Total 7 States	3,712	3,984	4,005	3,972

The generally close agreement of the Census figures with those obtained by the assessors is fairly convincing evidence that the Census obtained the number of sows on hand at the time of the visitation and not the number on January 1 as the question asked for. If this were true in the case of sows, it was probably also true with all hogs but with considerable uncertainty as to whether and to what extent 1945 pigs were reported.

In many of the States where rather complete records of marketings by months are available, it was found that if the marketings between January 1 and the average date of enumeration, with an allowance for farm slaughter, local slaughter, and death losses during the same period, were added to the reported Census number of all hogs, the total was fairly close to the estimates of the Department of all hogs on January 1, 1945. Where this was the case the general policy was to retain the estimate or a figure reasonably close to it.

There was another indication that the Census figures of all hogs were low for January 1, 1945. All available evidence indicated that the number of spring sows in 1944 was substantially larger than the number in 1945. If the Census figures of spring sows in 1945 were substantially correct as to the number of sows that farrowed in the spring season of that year, then it is fairly certain that the number farrowed in the spring of 1944 was considerably larger. The 1944 spring pig crop was estimated as the third largest spring crop ever produced, being exceeded only by 1942 and 1943. The total pig crop of 1944—spring and fall— was estimated as the fourth largest on record, and not much different from that of 1939. With a pig crop of this size there is no evidence from marketing and slaughter records during the latter months of 1944 that would make it possible to reduce this number by January 1, 1945 to the low number reported by the Census.

Beginning in about 1943 and continuing to the present time there has been a growing spread between the indicated number of hogs for slaughter based upon the estimates of the pig crops and death losses and such records of slaughter as are available. This situation tended to support an expectation that the Department's estimates of pig crops and also of the number of hogs on farms January 1 were too high. If this were the case it was thought that the Census enumeration would indicate it. But because of the delayed enumeration, the Census figures of all hogs were not considered as a reliable check on the estimates of hogs on farms January 1, 1945. The Census figures on spring sows indicated that the estimates of the spring pig crops, at least so far as the number of sows to farrow is a factor, were about correct. There is no direct Census check on sows to farrow in the fall season but presumably the estimates of fall farrowings should be as dependable as those of spring since they are based upon the same kind of sample data with the relation of fall sows to spring comparable over a long period of years. If the estimates of sows and pig crops were reduced to bring them in line with available slaughter records, it meant that the number of spring sows in 1945 would be substantially below the number enumerated by the Census and as reported by the State farm censuses in the States making these.

Before a final decision was reached it was thought desirable that the problem should be discussed with the technical people in the Department who were in close touch with the statistical data covering

hog numbers, pig crops, and records of slaughter. The opinion of this group was unanimous that the best policy was to follow the Census and other records and sample data on sows and the pig crops indicated by these. This was the course finally taken. The only explanation of the discrepancy is that there was a large element of slaughter that was not covered in any of the records being obtained. These years were those of meat rationing and slaughter control and there was every reason to expect that there would be a large volume of hogs marketed or disposed of through other than regular channels.

Sheep: An appraisal of the 1945 Census enumeration of sheep involves not only an allowance for the effect of the delayed enumeration on the number actually reported but also an allowance for incompleteness in the enumeration itself. There has always been a rather marked difference between the estimates of the Department as to the number of sheep in the Western Sheep States and the numbers reported by the Census, even in years when the Census date was January 1. In some of these Western States it has been impossible to get anything approaching a complete enumeration of sheep numbers. This arises from the character of the industry in those States and the kind of ownership. The range sheep industry is operated in relatively large units and is still highly migratory. Unlike cattle or horses, many of these range outfits are not associated with specific ranch properties but operate largely either on leased land or on unimproved land. In many cases the owners or managers live in towns or cities which may be relatively far removed from the areas where the sheep are to be found. Unless these owners are located and the enumeration information obtained from them, the sheep involved are fairly certain to be missed by the enumerator.

Another feature of the sheep industry that is different from other livestock operations is that there are two fairly distinct types of operations. One of these is the handling of breeding flocks or stock sheep and the other is the feeding industry. To a considerable extent these operations are separate and are carried on by separate individuals. Also the feeding industry is to a considerable extent of a commercial type, being carried on in large feed lots that are not associated with or attached to any farming or ranching operations. It is also highly seasonal in character, being at its peak about January 1 and declining rapidly each month until the end of April.

The regular Census schedule carried two questions on sheep: "All sheep and lambs January 1, 1945" and "All ewes and ewe lambs kept for breeding ewes January 1, 1945." Detailed classification items were included on the sample schedule for large farms and for those in the master sample segments. As the Census figures for important sheep States became available it was increasingly evident that the number of ewes were under-reported. Ewes and ewe lambs make up from 90 to 95 percent of the total number of stock sheep but on January 1 much smaller percentages of all sheep in States where lamb and sheep feeding are important. In fairly important 'native' or farm flock States where there is little feeding activity, the percentages shown were noticeably lower than these. The disappearance of sheep between January 1 and the enumeration date would be largely of lambs and sheep on feed, except for normal death losses of stock sheep.

It so happened that the number of sheep and lambs on feed on January 1, 1945 was a record percentage of all sheep. It was nearly 15 percent of the total compared with an average of between 11 and 12. The first problem in reviewing the Census total sheep by States was to try to get some indication of the number of feeding sheep included. But if the reported number of ewes (including ewe lambs) was divided by the usual percentage of ewes in all stock sheep, and the quotient subtracted from the reported total of all sheep, the indicated number of feeders seemed much too high even for January 1. And it was reasonably certain that most of the feeders that had been marketed before the enumeration would not have been reported. In concentrated feeding counties where there was available a fairly complete record of the number on feed, it was apparent that only a part of the January 1 numbers was reported, but there was no information as to the average date of the enumeration in these counties. In view of all these indications, it was decided that the numbers of ewes, including ewe lambs, being reported to the Census did not include all of these. This conclusion was later verified by the tentative records of classification in some States. These showed that where the ewes 1 year old and over and the ewe lambs under one year were reported separately on the sample schedule, the sum of the two classes made up a normal percentage of all stock sheep—that is between 90 and 95 percent. But where these were reported combined on the regular schedule the percentage was considerably smaller. It seems fairly certain that

many reports did not include the ewe lambs with the ewes 1 year old and over on the regular schedule. It is not certain whether this deficiency was caused by the failure of the enumerators to ask the complete question or whether the wording of the question itself was confusing. Since the number of ewes was expected to be the most useful of the two items on sheep, especially in view of the delayed enumeration, this uncertainty as to what was actually reported tended to further reduce the value of the Census figures as a basis for the estimates of sheep numbers.

The difference between the Census total of all sheep and the revised estimates of the Department is about 5,300,000 head. A part of this difference is the allowance made for the delayed enumeration and the rest is allowance for under-enumeration in some of the Western Sheep States. The allowance for delay in enumeration was largely in States where feeding operations are important and where many of the lambs and sheep on feed would have been gone before the enumeration visit. The allowance for under-enumeration is largely in a few of the Western Sheep States. The revised numbers are down about 1,200,000 head from the original estimate, with most of this in the Western Sheep States. There was evidence that the estimates of sheep numbers were a little too high before any of the Census figures became available. This evidence from records of shorn wool appraised for purchase by Commodity Credit Corporation was usable only as to total numbers of stock sheep, and the 1945 Census was helpful in indicating in what States the estimated numbers were probably too large. These records, on the other hand, were additional evidence that the number of sheep enumerated by the Census was much too small. This situation is covered in some detail in the following section on wool.

Wool: For a considerable period of years there was uncertainty as to the volume of shorn wool production in the United States although there were several different bases for estimating it. In addition to the yearly estimates of the Department, based on estimates of the number of sheep shorn and average weight of fleece, there were the periodic reports of the Census of Agriculture as to the number of sheep shorn and the pounds of wool shorn and an indication of domestic shorn wool production each year from the reports of the Census of Manufactures on wool stocks and wool consumption. For the year 1939, the 1940 Census reported 289.8 million pounds of wool shorn on farms and ranches, the estimate of

the Department was 363.7 million, and the indicated production from the Census of Manufactures' reports was 413.6 million pounds. It was certain that the Census of Agriculture figure was too small, and there were indications that the Census of Manufactures figure was too large. The Department's estimate was between the two Census figures but there was no further way to check its accuracy. Hence, when the wool purchase program of Commodity Credit started, it was hoped that finally an exact figure for shorn wool for one or more years would become available.

For the year 1944 the preliminary estimate of the Department was 347.1 million pounds. The Census of Manufactures indicated 355.0 million pounds. The 1945 Census of Agriculture reports 279.9 million pounds. An exact figure from Commodity Credit records, however, is not available covering total 1944 shorn wool. The records of 1944 shorn wool appraised when converted to a greasy shorn basis show appraisals of about 325.0 million pounds. However, during that year manufacturers who were accustomed to buying wool directly from producers were permitted to do so. Also, wool produced in a number of minor sheep States did not have to be sold to Commodity Credit. There is only limited information as to what the quantity of this wool might have been, but what information there is indicates that it might have been over 10.0 million pounds. This added to the CCC appraisal gives a total of 1944 shorn wool of around 335.0 million pounds. Revised estimates of shorn wool production were made by the Department on the basis of the revised estimates of stock sheep on farms. The revised estimate for 1944 is 338.3 million pounds. If the Commodity Credit indicated total of 335 million is assumed to be approximately correct, the estimate of the Department is only about 1 percent above this. This discrepancy could be caused by too high estimates either of sheep shorn or of weight per fleece. The 1945 Census schedule did not ask for the number of sheep shorn, so there is no information from that source as to weight per fleece.

It is certain, however, that the Census is short in the number of farms reporting wool shorn. In important "native" sheep States where comparison is possible between the Census reports and the livestock sample data of the Department, there is rather close agreement as to the decline between 1940 and 1945 in the percentage of sheep farms to all livestock farms. The sample data shows that most of this decrease was in 1944. This would indicate

that there were considerably more farms with sheep in 1944 and on which wool was shorn in 1944 than there were that had sheep on January 1, 1945. Yet the Census report shows only about 88 percent as many farms reporting wool shorn in 1944 as had sheep in 1945. It is highly probable that Census enumerators failed to ask for wool production where no sheep were reported. If the Department's estimate of wool shorn in 1944 is substantially correct, it seems probable that the estimates of stock sheep on farms January 1, 1944, upon which number the wool estimates are based, are also substantially correct. This is additional evidence that the 1945 Census numbers of all sheep and all ewes are much too low, as there could not possibly have been a drop in numbers during 1944 equal to the difference between the Department's estimate for January 1 of that year and the Census figures for January 1, 1945.

Summary Conclusions: From the foregoing discussion of the various species and classes of livestock it is apparent that the 1945 Census enumeration of livestock on farms furnished an inadequate bench mark, either for revising the estimates for 1945 and preceding years or for projecting the estimates for succeeding years. But although the Census totals in themselves are very questionable as giving a dependable level of numbers of the different species as of January 1, 1945, they were of material value to the Department of Agriculture in furnishing evidence for making new estimates of numbers that are closer to the actual numbers than were the old estimates. Thus the estimates in the period from 1945 to 1950, when the next Census of Agriculture will be taken, are and will be more accurate than they would have been without the 1945 Census. What the actual numbers of livestock on January 1, 1945 were can never be known. It is believed, however, that the revised estimates of the Department are closer approximations of these than are the Census numbers.

It is unfortunate that there are two sets of figures, both from government sources, differing materially as to the number of livestock on farms January 1, 1945. For if the Census totals by States are too low, this error carries over to the county and minor civil division figures. Thus comparisons of change between Census years for these smaller areas will be misleading. However, these comparisons will be no more misleading than ones made in the past where the Census enumerations were of different dates and the

numbers on January 1 are compared with those on April 1. A consistent and dependable series of livestock numbers from Census enumerations will never be forthcoming until these enumerations are taken as of the same date, cover the same classifications, and are completed in a minimum of time. The basis of such enumerations is a short schedule covering only essential items of acreage and inventories that all farmers can answer, with other more complex questions carried on sample schedules.

MIGRATORY FARM WORKERS IN THE UNITED STATES

LOUIS J. DUCOFF

Bureau of Agricultural Economics

PUBLIC concern regarding migratory farm workers has undergone three distinct and contrasting phases during the past decade. First, there was the prewar phase of concern over too many migratory workers in search of farm jobs. Their numbers were so large in relation to job opportunities that many of them were unwelcome and unwanted. The experience of migratory workers and their families during the 1930 decade reflected a most tragic chapter in our history which has been so well documented that it requires no recapitulation.¹ World War II brought about drastic changes in the labor supply situation which rapidly reversed the direction of public concern in the matter of migratory farm workers. The second phase was characterized by emergency measures to augment the numbers of seasonal farm workers, including the importation of workers from other countries, particularly to replace the depleted ranks of migratory workers.

A third phase was ushered in by the ending of the war, demobilization, and reconversion. Because the direction in which we are going cannot yet be too clearly seen, there is both hope and concern in the minds of students of the problems of migratory workers; for example, a Federal Inter-Agency Committee on Migrant Labor was created with representatives of Federal agencies directly interested in questions relating to living and labor conditions of migrant workers in industry, transportation and agriculture.² Because mi-

¹ Documentation of the prewar situation from many sources is contained in the hearings of the United States Senate Committee on Education and Labor (Senator LaFollette, Chairman) and those of the House of Representatives Select Committee to Investigate the Interstate Migration of Destitute Citizens (Representative Tolan, Chairman). The writings of Paul S. Taylor, Carey McWilliams, John Steinbeck and others were also important in creating public concern over the welfare of migratory farm workers.

² The need for a program of action on problems of migratory workers formed the subject of an Institute on Migratory Labor Problems held in Princeton, N. J., in June, 1945. In addressing this Institute, Professor Paul S. Taylor recommended the appointment of an interdepartmental committee of Federal Agencies along with other steps. Such a committee was established May 3, 1946 by the Retraining and Reemployment Administration of the United States Department of Labor, with Major General G. B. Erskine, Administrator, as Chairman. The Committee was dissolved on March 31, 1947 after completing a Report and Recommendations of the Federal Interagency Committee on Migrant Labor, published by the U. S. Department of Labor under the title, *Migrant Labor, A Human Problem*.

gratory agricultural workers will in the future as in the past comprise a very substantial part of all migratory workers, it is pertinent to examine their current and prospective situation from the vantage point of recent information on their numbers, distribution and employment conditions.

Why Migrant Farm Workers?—During short periods of cultivation or harvest, the sharp peaks of labor requirements in certain types of specialized agriculture produce a demand for much greater numbers of workers than are needed during the rest of the year. For United States agriculture as a whole, the greater part of the requirements for seasonal labor is met by the employment of local seasonal workers for pay and by the unpaid work of farm family members. Employment of migratory workers is primarily a feature of the pattern of production of that segment of the agriculture of our country which is characterized by relatively large-scale specialized production often referred to as industrialized farms. The labor of migratory workers makes possible the cultivation and harvesting of much of the acreage in fruits, vegetables, and in cotton, sugar beets, hops and other crops.

Several factors enter into the employment on such farms of migratory rather than local seasonal workers. The number of workers required for hand labor in cultivating or harvesting operations may be so large and the periods of employment so short that the recruitment of the necessary numbers of workers from the local labor supply is difficult or impossible. Moreover, the arduousness of the work together with the wage and living conditions that accompany it are often of such a nature that the locally resident population of working age would not accept it. In certain areas and certain types of production the larger employers of hired farm labor prefer migratory workers because the ethnic or socio-economic groups preponderant among migratory workers provide a more tractable labor supply than would local workers.

On the supply side, various factors operate to affect the numbers of workers who from want of better alternative employment opportunity leave their regular residences and with or without their families seek work as migratory farm laborers. The great depression of the 1930 decade, the droughts of the dust bowl area, and the displacement of farm workers by increased mechanization were the most important factors augmenting the supply of migrant farm workers in the decade before World War II. In contrast, the man-

power demands of a Nation at war, which afforded ample employment opportunities of a more continuous nature and which drew men into the armed services, greatly reduced the number of migrant workers available to farmers. The supply of migratory workers is a variable number depending on employment conditions in the economy as a whole and on technological and other conditions in agriculture which displace workers. Another underlying cause which affects the supply of migratory workers is the high rate of natural increase of population in many rural areas without a corresponding increase in employment opportunities.

How Many Migrant Farm Workers?—Accurate figures on the total numbers of migrant workers spending at least a part of the year in farm work have not been available in past years. Considerable information was obtained during 1945, however, which portrays the situation existing after nearly four years of war. At a peak week in the fall harvest, a national survey indicated a total of about 500,000 migrant workers employed on farms of the United States. This total included about 400,000 citizens of the United States and nearly all of the 85,000 foreign workers who were imported temporarily under international agreements and transported where needed by the Department of Agriculture. In addition, some part of the 95,000 prisoners of war working on farms in the United States in September 1945 were moved from one locality to another during the year, although it was the policy of the War Department to locate groups of prisoners where work would be available for as much of the year as possible in one locality. Most of the imported foreign workers and some of the prisoners of war were in effect war-time substitutes or replacements for prewar domestic migratory farm workers who no longer sought such work when steady jobs became available.

Figures on employment of hired farm workers in one week of the year—even a peak week for hired employment in agriculture as is the case in the latter part of September—understate the total number of different persons who do such work in the course of a year. Various studies of the Bureau of Agricultural Economics provide the basis for the estimates shown in Table 1 of the total number of different individuals who were migratory farm workers during some part of the year 1945. The estimates relate only to migratory farm wage workers and exclude all non-working dependents.

It is important to note that of the persons who were migratory

TABLE 1. ESTIMATES OF MIGRATORY WORKERS EMPLOYED ON FARMS IN SELECTED WEEKS OF SEPTEMBER 1945 AND JULY 1946, AND AT ANY TIME OF THE YEAR DURING 1945, UNITED STATES AND MAJOR REGIONS

Area	September 16-22, 1945	At any time of the year during 1945	July 21-27, 1946
	Thousands	Thousands	Thousands
United States	510	600	400
Domestic	425	480	340
Imported foreign	85	120	60
North	180	240	220
Domestic	150	200	200
Imported foreign	30	40	20
South	170	180	50 ¹
Domestic	160	165	40
Imported foreign	10	15	10
West	160	180	130
Domestic	110	120	100
Imported foreign	50	50	30

Source: Based on data from enumerative surveys of the Bureau of Agricultural Economics. In these surveys, migratory farm workers are defined as workers from outside the county who are lodged in places not considered their regular homes. The estimates relate only to migratory farm wage workers and exclude all dependents except those who also did farm wage work during the specified week or year.

¹ The decrease of 120,000 migratory workers in the South between the fall of 1945 and the summer of 1946 is seasonal; almost all of the 170,000 migratory workers in September were engaged in picking cotton.

farm workers for some time during 1945, the number in the West was no larger than in the South and was exceeded by the number in the North. Dramatization of the Joads, the "Oakies," the "Arkies," the Mexicans and the Filipino migratory farm laborers in California has tended to make the majority of the citizens of other States aware of a migrant farm labor problem only in California. Actually, most of the States which are important in agricultural production have migratory laborers used on their farms in certain areas during the course of a year.

Migratory farm workers, including domestic and imported foreign workers but not prisoners of war, made up only about one seventh of the hired farm working force of the United States in 1945, which is estimated to have included more than 4 million different persons. Their importance in agriculture lies more in their availability in large numbers to growers at the times when the demand for short-time seasonal labor is not met by the local supply.

This highly mobile portion of the hired farm working force thus permits many agricultural employers to increase greatly their number of workers in certain parts of the season without having to provide regular employment. The availability of a mobile supply of labor also permits the needs of a number of employers to be met by the same workers, a condition which contributed to a fuller utilization of available labor during 1945 and earlier years of the war period.

Present Trends in Migrant Farm Workers.—The two dates for which estimates of the numbers of migratory farm workers are given for 1945 and 1946 in table 1 are in different seasons of the year and consequently cannot measure the trend from one year to the next. For example, the decrease in the South of 120,000 workers from the fall of 1945 to the summer of 1946 is seasonal, reflecting largely the fact that the cotton picking season had not begun when the 1946 survey was made. In the other direction, the rise of 40,000 in the North is consistent with the generally higher summer than fall level of hired farm employment in that region. The fact that the total level of hired farm employment in 1946 was slightly above that in 1945 suggests an increase in domestic migratory workers that at least offset the cessation of use of prisoners of war by mid-1946 and a reduction of about one-third in the number of imported foreign workers being used on farms.

Some increase in domestic migratory farm workers was probably occasioned by the return of veterans and war industry workers to peacetime jobs that resulted in displacement of other workers, especially those who are normally less sought by employers—youths, women, and racial groups subject to discriminatory hiring practices. Another factor operating to increase the number of workers available for farm work—sometimes on a day-haul basis, sometimes as migratory workers—has been the reduction in take-home pay of major breadwinner because of elimination of overtime or downgrading. This makes for an increase in the number of secondary workers who must also seek employment to supplement the family income.

Long-term Outlook for Number of Migrant Workers.—The longer-term outlook for the number of migratory farm workers in the United States is more predictable from the point of view of demand than supply factors. An increase in the use of newly devised machinery in more of the cultivating and harvest operations which

have traditionally required a large amount of hand labor is inevitable. One effect of the manpower situation during wartime was to increase the desire on the part of many growers to substitute machines for hand labor, especially when there was no certainty that the hand labor would appear in sufficient volume at the time of the year needed. The inventive genius of the United States has by no means exhausted the possibilities of new types of machines which can handle additional agricultural operations. The cotton picker alone may obviate the need for a large proportion of migratory workers in the Cotton Belt. It seems safe to conclude that continued technological advances could reduce greatly the number of migratory workers actually needed on farms during the next decade if the general economic situation remains favorable to continued mechanization of agriculture.

If the record of the past holds a clue to the future, however, factors affecting the available supply of migratory workers will be more important in determining the numbers actually seeking seasonal farm jobs than will the demand situation. During the 1930 decade, it was the decrease in alternative employment opportunities which led to the large increase of migrant workers rather than any marked rise in seasonal agricultural labor requirements. The surplus labor supply situation resulted in considerable periods of unemployment for many migrant workers, very intermittent employment for the more fortunate, and depressed wage rates. As in the past, the future number of migrant workers will probably become excessive unless the general economic situation of the country stays good and large groups of workers are not forced onto the road in search of manual employment.

Extensive disemployment from urban jobs, or through technological displacement such as could arise from mechanization of cotton production would increase the number of migrant workers. In the depth of the great depression, some estimates have placed the number of migratory workers seeking farm jobs at over twice the current number. Should another depression occur, it would doubtless lead to a large increase in migrant workers, although unemployment compensation benefits and veterans' allowances might make the increase less marked than in the 1930's.

Who Are the Migrant Farm Workers?—The composition of migrant farm workers in the United States has changed very greatly the course of the years. The army of migrant workers who used to

follow the grain harvests from Texas to Canada were mostly men, traveling without families. Since their displacement by combines in the 1920's, single men have formed smaller proportions of the migrant farm working force and family groups have become more important.

Minority race and nationality groups have always bulked large among migrant farm workers. Mexicans and United States citizens of Mexican descent have long formed some of the most important migratory streams. In earlier decades, recently arrived European immigrants with their families often turned to migratory farm labor jobs and even at present, families of recent European origin living in Northern cities often go to the fields for the summer harvests. Along the West Coast, orientals have been important in the farm labor picture, with Filipinos acquiring special skills and speed in specialized harvest operations. In more recent years, a large migratory stream of Southern Negroes has followed the harvests up the Atlantic seaboard and into special crop areas of the Middle Atlantic States.

But native United States white workers have also joined many of the migrant streams. Especially in the 1930 decade, hundreds of thousands of workers displaced from the Dust Bowl and the western part of the Cotton Belt trekked to California and competed with minority groups for the available farm jobs. In the midwest and along the Atlantic seaboard as well, native-white citizens of long settled ancestry have swelled the migrant labor streams. From the self-sufficing farming areas of the Southern Appalachians, small-scale farm operators and members of their families frequently migrate north for summer field work, and return to their small farms in winter.

There is a great diversity of the groups found among migrant farm workers in different special crop areas widely scattered over the country. More often than not, however, they represent disadvantaged groups—those who because of race, nationality, lack of education or occupational skills have not readily found employment of a regular nature. Among those traveling in family groups, wives and young children frequently work to augment the family earnings when work is available for them.

In July 1946, some information was obtained on the characteristics of migratory farm workers employed during the survey week. In every region the proportion of females was higher among migrant

than nonmigrant farm wage workers. Among migrant farm workers the percentage of women and girls was 20 percent in the North, 26 percent in the West, and 41 percent in the South. Corresponding percentages for nonmigrant workers were 6 percent in the North, 5 percent in the West, and 33 percent in the South. For the country as a whole, World War II veterans made up a slightly higher percentage of male migratory workers than the 13 percent of veterans among local workers.

How Much Work Do Migrant Workers Get?—One of the greatest problems faced by migrant farm workers along with other seasonal farm workers is the intermittency of the work available to them. This chronic problem was somewhat alleviated during wartime and the current period by the much greater availability of nonfarm jobs with which farm employment could be supplemented. Even under the best conditions, however, migrant workers lose available working time in the very process of going from one place to another. In addition, time may be lost in contacting employers and arranging for work, after a place is reached. There is always the problem of getting to the right place at the right time. Because of bad weather, a delayed season, or incorrect information, the arrival of migrants may be too early and they must undergo a period of unemployment before work actually begins. After work has begun, bad weather may cause interruption of the harvest, while poor yields or the presence of excessive numbers of workers may shorten the duration of the work.

Wartime saw many improvements in the direction of fuller utilization of available farm labor. The necessity of guaranteeing employment for a specified proportion of the time available in the case of foreign workers transported by the Department of Agriculture led growers to plan for their labor needs in advance. Cooperation among growers in working out as much continuity in employment as possible for groups of workers to be brought into a county frequently aided in obtaining the amount of labor required without piling up the surpluses which often characterized the prewar situation. The Extension Service in its farm placement program also contributed to a fuller utilization of domestic farm workers, through routing and referring workers to farmer employers. Despite these wartime advances many migratory farm workers still experience periods of unemployment in the course of a year which could be reduced through improvements in the operation of placement programs.

Wages of Migratory Farm Workers.—The wage structure in agriculture is complex, with many types of time and piece rates paid for different types of work in different parts of the country. Generally the types of work performed at harvest time or at other seasons when the demand for labor is high are paid at rates which yield higher hourly and daily earnings than those from general farm work. Because migratory workers usually supplement the local labor supply at the time the demand is greatest, they average higher earnings on a short-time basis than do regular farm workers.

In September 1945, migratory workers employed in crews in the South averaged 39 cents an hour, compared with 30 cents for local crew workers. The differential was not great because most of the crew workers, migratory and local, were engaged in cotton picking at rates which were pretty uniform. Lower earnings of the local crew workers were probably due mainly to a greater proportion of children and youth among them than among migratory crews. In the Northern States, migratory crew workers had higher average wages than that of local crew workers. But in this region, the migratory workers were concentrated in relatively few special crop areas and were engaged in the better paid harvest operations while local crew workers who were widely distributed over the Northeastern and North Central States were engaged in a variety of types of less well paid farm work. In the West, also, migratory crews averaged higher wages than local crews, 90 cents per hour compared with 77 cents.

Special surveys of wages of harvest labor in selected crops and areas during 1945 provide a basis for closer examination of wage differentials between local and migrant workers engaged in the same harvest operations. Differences in hourly cash earnings by local and migratory crews were small, with migratory workers usually making a few cents more per hour, though in some cases the local workers averaged more than the migratory. All the evidence suggests that while migratory workers are not discriminated against in the matter of rates paid for farm work, neither are they generally paid higher rates for the same type of work. However, they frequently work at the better paid types of seasonal farm work and when paid piece rates often exceed local workers in performance and daily earnings.

In July 1946, wage differentials as between migratory and local workers were not consistent in the several major regions of the United States. A great diversity of harvest work was in progress at

that time of the year, and average earnings differ widely among the harvesters of different crops in the same region. Over 97 percent of all migratory workers surveyed were doing harvest work, with 41 percent engaged in the harvesting of fruits and vegetables. Hourly earnings of the migratory workers included in the survey were slightly higher than those of local workers in the North and slightly lower in the South and West.

The wage problems of migratory farm workers do not stem from any discrimination against migratory workers. They are rather the result of two factors: (1) the generally low levels of farm wages relative to those of industrial workers; and (2) the irregularity and intermittency of employment, which means that even though current average hourly earnings for some groups of migratory workers may be satisfactory, the probability that earnings are satisfactory over longer time periods decreases rapidly as the unit of time is lengthened to a month, a season or a year.

One of the greatest gaps in information about migrant farm workers is with respect to their annual earnings from farm and nonfarm work on an individual or family basis. Various studies of the situation in the 1930 decade uniformly showed average annual earnings too low to maintain a family at a minimum adequate level of living. Low rates of pay were important in producing the situation and the average amount of employment obtained during the year was probably equally or more important. Little information is available on recent changes in average earnings from work obtained by migrant workers during a year, and on their average annual earnings from supplementary nonfarm work. For those hired farm workers, migratory and nonmigratory, who worked 250 or more days at hired farm work in 1945, the average cash farm wages earned during the year were \$914 but among those working only 6 to 10 months the average wages from farm work were only \$524. To what extent this latter group supplemented their earnings with wages from nonfarm work is not known, nor do we know how closely annual earnings of migratory workers approximate those for all farm workers. Except for some form of housing provided to some migratory workers without charge, little is furnished these workers in the way of perquisites, such as meals, farm products, etc.

Special Problems of Migrant Farm Workers.—Migrant farm workers share many of their problems with local seasonal farm workers

—intermittent employment, low wage levels which prevail for most types of farm work, often inadequate housing, and a low social status accorded them and their families by other residents of communities in which they work. But in all of the matters except level of wage rates, the problems are usually more accentuated for migrant farm workers than for local. Especially in the matters of housing, medical care, education for their children, and general social status in the community is the average lot of migrant farm workers below that of local workers.³ The very fact of migrants being detached from any home community renders more essential their being provided with safeguards in the way of medical care, sanitary standards of housing, insurance against accidents, educational and day-care facilities for their children, etc. It is in these matters that growers individually or collectively, sometimes in cooperation with local community groups, can do much to provide improved working and living conditions for migrant farm laborers and their families.

During the period of wartime scarcity of labor, many growers learned the value of maintaining good relations with their workers and good working and living conditions for them. The voluntary efforts of these more advanced employers would be aided through legislative support of wider adoption of practices which better the lot of migrant farm laborers. Similarly, some community groups have set excellent examples in providing sanitary reception centers for migrants and in establishing day-care centers for the younger children of migrant workers. More wide-spread activities of this sort would benefit employees, workers and the communities. Government housing centers operated both for imported workers and for domestic workers provided examples throughout the country of workable sanitary and health standards in housing for migratory farm workers.

Résumé.—The presence of large numbers of migrant farm workers has been a feature of American agriculture for decades and will doubtless continue to be so in the future. The number of such workers tends to diminish in times of prosperity and to increase in times of depression, but even in the recent prosperous years with a

³ See *Migrant Labor A Human Problem*, Report and Recommendations, Federal Interagency Committee on Migrant Labor, U. S. Department of Labor, March 1947.

tight manpower situation, there were 600,000 migratory workers, including the imported foreign workers who substituted for domestic farm workers.

Migrant farm workers have included a wide variety of racial and nationality groups, and a disproportionate share of disadvantaged social and economic classes. Their lot is partly shared by other seasonal farm workers in such respects as insufficient employment security, low annual earnings and deprivation of the protection from social legislation regarding wage and hour standards, unemployment compensation, workmen's compensation and old-age insurance. But migrant farm workers experience special disadvantages in time lost from work in migrating and securing employment, in the low standards of housing and sanitary facilities available to them, and in the lack of educational and other community services for themselves and their children. They usually do not meet residence requirements for public assistance or work relief in times of unemployment. Their working and living conditions often result in higher incidence of the types of diseases associated with insanitary conditions.

Because migrant workers are generally unorganized, they are seldom articulate as a group in demanding improved working and living conditions. Public and private agencies in cooperation with grower-employers and local community groups should share in concerted and continuing efforts to improve the living and working conditions of this group which is so crucially important in meeting the peak labor needs of commercial agriculture in many localities.

FARM HABILITATION PERSPECTIVES IN THE POSTWAR PERIOD

SAMUEL LISS*

Farmers Home Administration

THE Farmers Home Administration Act of August 1946 may be considered a milestone in the field of Federal agricultural supervised credit. As formerly under the Farm Security Administration, this credit is to be associated with direct farm and home management guidance of disadvantaged, low-income family farmers who are unable to obtain financial accommodations from conventional lending institutions.

The Congressional mandate received by the Farmers Home Administration, the newly created agency, is considerably clearer in intent and more specific in defining the objectives to be achieved than those contained in previous executive orders, appropriation acts, or in the Bankhead-Jones Farm Tenant Act of 1937. The new statute largely amends the latter act. On the whole, however, the new agency is more limited in the choice of farm habilitation techniques than were the Resettlement and the Farm Security Administration, its predecessors.¹

* The views expressed in this article are not necessarily those of the Farmers Home Administration.

¹ The Farmers Home Administration Act of 1946 abolished the Farm Security Administration, which had operated as an agency under the provisions of the Bankhead-Jones Farm Tenant Act and under the authority of appropriation acts and executive orders, and established in its place, as a statutory agency, the Farmers Home Administration.

To this agency were transferred practically all the functions of its predecessor either for operation or liquidation. In addition, the new act expanded, broadened, and clarified the farm tenant and rural rehabilitation titles of the Bankhead-Jones Act. The major significant differences in the provisions between the Farmers Home Administration Act and previous legislation are as follows:

Title I (Tenant Purchase Loans and Mortgage Insurance): a) The new act provides for the extension of real estate loans not only for the purchase of farms, as heretofore obtained under the Bankhead-Jones Act, but also for enlarging or improving family farms for more efficient operations; b) In the past, loans under this title were used primarily to finance tenants and other non-owners in the purchase and improvement of their farms at time of acquisition. The new legislation permits owners, as well as non-owners of undersized or underimproved farms to acquire, enlarge or improve farms; c) The principal addition of authority to the new agency is the establishment of a farm-mortgage-insurance system for the protection of orthodox lenders of funds on farm-ownership loans similar to the long-term mortgage loans made directly by the agency itself.

Title II (Production and Subsistence Loans): While the Bankhead-Jones Act gave specific legislative authorization for the continuance of the rural rehabilitation loans, which prior to 1937 had been made under executive orders and financed by funds from appropriations for relief and work relief projects, it provided for only

There is little doubt that many credit-handicapped low-income farm families will be in need of habilitation in the years ahead. Despite war time and more recent high records of farm production, farm prices and farm income, not all farmers have shared alike in the benefits. A large number of farm families have not shared in this prosperity because they farmed with poor and insufficient land, inadequate capital and working equipment, and with inefficient management practices.

It is to this agricultural sector that the Farmers Home Administration, one of the action agencies charged with the task of postwar habilitation of low-income farm families, will logically address its responsibilities. If it is to have correct perspectives for discharging its responsibilities with the maximum effectiveness, awareness of the impact on agriculture of the changing manpower requirements and of production efficiency in the industry is indispensable.

This paper a) describes the manpower and productivity setting in which postwar farm habilitation programs will be operating, b) evaluates the perspectives for such programs, and c) projects the over-all area of responsibility and the potential habilitation case-load of the Farmers Home Administration.

Part One—The Manpower and Productivity Setting

A. Manpower and Productivity Trends in Agriculture

Although agriculture has increased in both output and production capacity, it has been shrinking relative to our total economy with respect to occupational and employment opportunities. In the past 125 years the proportion of the Nation's labor force engaged in

an initial appropriation for this purpose. Thus, until the passage of the present act, the rural rehabilitation loan program of the F.S.A. had been financed by annual appropriations without the benefit of organic legislation. The new act rectifies this situation by authorizing the appropriation of "such sums as the Congress may from time to time determine to be necessary to enable the Secretary to carry out the purposes of this title."

Early Habilitation Techniques Eliminated: a) Present act re-affirms previous legislation for (1) the liquidation of rural rehabilitation and resettlement projects, and (2) for the prohibition of loans to any corporation or cooperative association, for leasing of land designed to carry on operations in collective or cooperative farming for the organization, promotion or management of homestead associations; to land-leasing or purchasing associations, or for cooperative land purchasing for settlement or resettlement purposes; b) Authorizes the liquidation of farm-labor supply centers, farm-labor homes and camps when they are no longer needed, or 6 months after official termination of hostilities, whichever is the earlier.

Misc.: The F.S.A. followed the practice of extending credit only to those who were unable to obtain it from conventional lenders, and to "graduate" such borrowers to conventional lenders as soon as their loans qualified. These two practices are now statutory requirements.

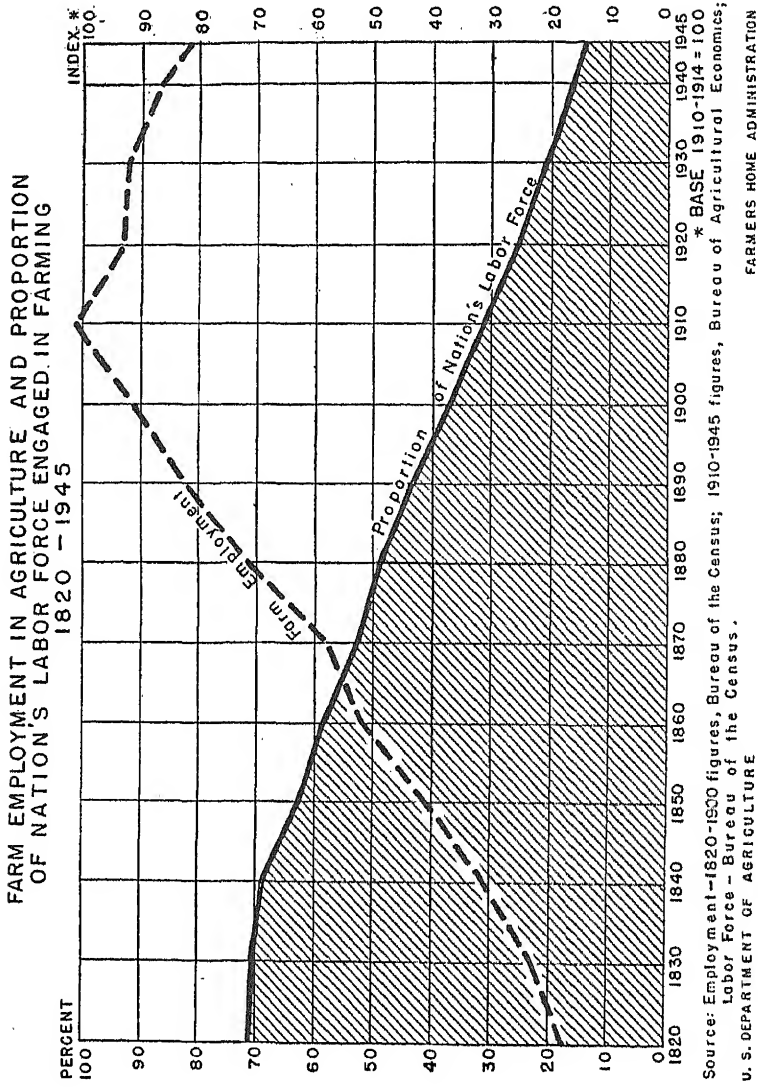


FIGURE 1

farming has declined, even as farm production has risen. In 1945, less than 2 out of every 10 workers in the United States were engaged in agricultural pursuits, as contrasted with about 7 out of every 10 in 1820. (Figure 1.)

Until 1910, agriculture furnished employment to a smaller and smaller proportion of the Nation's workers, but the actual number employed in farming continued to rise. Since 1910, the number of workers engaged in agriculture has declined both absolutely and relatively. Between 1910 and 1945, average annual employment in agriculture fell almost continuously, from about 12 million (1910-1914 average) to about 9.8 million, or a drop of almost 20 percent. For every 100 workers employed in farming 1910-1914, about 90 were in demand in 1935-1939, and about 80 in 1945.²

World War II accelerated an increase in farm labor productivity and simultaneously speeded up the contraction in occupational and employment opportunities in the farm industry. In 1944 (despite war-time shortages of labor, equipment and materials) national agricultural production for sale and for consumption in the farm home was about one-third greater than in 1935-1939. This greater volume was produced with 8 percent fewer workers than before the war. Even in terms of gross farm production³ the increase between 1939 and 1944 was 18 percent, but the total man-hours expended for the 1944 output were only 3.6 percent above those used in 1939—or only one-fifth of the increase in gross farm production. This was reflected in the increase in output per worker of 26 percent in 1944 over 1939.⁴

The decline in the importance of agriculture as an employer of manpower since 1910 is attributable to the interaction of basic demand and supply forces affecting agricultural commodities. On the

² In part, this decline is a reflection of war-time shortages of agricultural manpower. But it is also true that these shortages were related to the increased demand for labor resulting from greater war needed production. Compared with 1910-1914, average annual employment declined 15 percent during the 1940-1945 period, and about 10 percent between 1935 and 1939.

³ Gross farm production measures calendar-year production of all crops and pasture consumed by all livestock, and the product added in the conversion of feed and pasture into livestock and livestock products for human use and into farm-produced horse and mule power. It also includes production of all other farm products for human use. The principal difference between gross farm production and agricultural production for sale and for consumption in the farm home is that the former covers all production of the calendar year without duplication and makes allowance for production not regularly reported in the available statistical series.

⁴ With a 1944 productivity rate, it has been estimated that the 1939 output could have been produced with 3 billion fewer man-hours, or a saving of 1.5 million man-years of work at 2,000 hours per worker. See, Sherman E. Johnson, *Changes in Farming in War and Peace*, FM 58, U. S. Department of Agriculture, June 1946.

one hand, farm production has been stimulated by continuous advances of technological improvements, mostly of the mechanical power variety; on the other hand, with exception of war years, demand for farm products has not advanced as rapidly, and in some instances has actually declined. Slowing down of the rate of population growth,⁵ particularly among higher income groups, low elasticity of demand for farm products among middle and upper-income recipients,⁶ chronic and periodic failures of purchasing power among a substantial number of domestic consumers, and an erratic and generally shrinking foreign market have retarded a progressive, and prevented a sustained demand for agricultural products. In this country, as in other industrially developed nations, the declining importance of agriculture as an employer of manpower appears to be closely associated with long-run forces operating in our economic society.

B. Postwar Agricultural Manpower Needs

It does not appear that factors making for greater efficiency in agriculture have run their course. Increases in farm productivity are expected to rise in the postwar years as much as or more than in the prewar years. Higher yielding plants and livestock and more labor saving and productive practices (increased use of fertilizer and lime, better soil management, etc.) are bound to continue in the years ahead.

It is generally expected that farming will be subjected to a widespread process of mechanization and re-tooling as soon as farm equipment manufacturers complete their reconversion from war to civilian production. Estimates indicate that "there will be about 460,000 additional tractors on farms in 1950.⁷ Each additional tractor would save about 800 hours of manpower if it is used with appropriate tillage and harvesting equipment."⁸ On the whole, we can expect a larger entrance of capital than of manpower into agriculture in the postwar years. This will be particularly true if high and stable economic activity prevails.

⁵ See J. M. Brewster, "Farm Technological Advances and Total Population Growth," this JOURNAL, August 1945.

⁶ See T. W. Schultz, *Agriculture in an Unstable Economy*, Part II, Ch. III, New York, 1945.

⁷ Recent Farm Census data on the increase in the number of tractors on farms between 1940 and 1945 has necessitated an upward revision of this estimate to over 500,000 tractors by 1950.

⁸ Sherman E. Johnson, "Improvements in Farm Technology and Their Effects on Farm Output," *Hearings Before the Special Committee on Postwar Economic Policy and Planning*, H. Res. 408, H. Res. 60, Part 5, 1944 and 1945.

There are no indications, moreover, that in the next 5 or 10 years, total demand for farm products will be much higher than they were at war-time peaks. In fact, there is some doubt that this demand will be sustained even if we reach and maintain a high pitch of economic activity and foreign markets hold up.⁹ Yet, there is a studied opinion that "in the years ahead, war-time production levels will tend to persist regardless of economic conditions."¹⁰ Historical precedent supports this position. During the 1929-1932 depression, the acreage of cropland planted was increased by about 12 million in an effort to maintain farm income to meet the 1919 incurred high fixed charges, and for living necessities. Between 1920 and 1939, a period of moderate agricultural demand and depressed farm prices, farm output increased 16 percent.

At best, it is conceivable that with an increase in population and a lifting of consumption standards here and abroad, a larger farm output will be required in the future.¹¹ But few will conclude that such larger demands will require expanding the Nation's farm plant or increasing the farm labor force. It has been estimated that "even with allowances for acreage needed for more adequate diets and increased consumption, the total planted acreage required with anticipated increase in production would not be above the average acreage of 340 million used for crops in 1935-1939."¹² Others have gone even further in their conclusions. Because of increased technological improvements, they maintain that the farm plant can

⁹ J. D. Black and C. D. Hyson predict that "by 1948, this country will definitely be on a food surplus basis, even with high-level employment." (See their paper, "Postwar Agriculture in the United States: Problems and Policies," in *Economic Reconstruction*, ed. by Seymour E. Harris, New York, 1945.)

T. W. Schultz maintains that "within one or the most two years after the war, farm prices are likely to recede from price ceilings that have held them in check, and many of them are likely to break through price floors set by the government." He further holds that "despite commitments by Congress to support market prices of farm products for at least two years after the war, farm prices may drop sharply . . . and are very likely to decline markedly relative to other prices as we make transition to peacetime economy." (See his book, *Agriculture in an Unstable Economy*, New York, 1945.)

¹⁰ *Report of the Interbureau Committee on Post-War Programs at the War's End*, U. S. Department of Agriculture, September 27, 1945.

¹¹ Estimates show that "if output increased only at the same rate as population increased, the per capita domestic consumption of farm products would need to be stepped up about 10 percent above the level of the 1920's to absorb the total farm output." See, Sherman E. Johnson, *Changes in Farming in War and Peace*, FM 58, U. S. Department of Agriculture, June, 1946.

¹² *Farm Opportunities in the United States*, prepared by Land Settlement Work Group of the Interbureau Committee on Postwar Agricultural Programs, U. S. Department of Agriculture, July 1945.

afford a contraction of 18 million acres of cropland and yet meet the demand of a full employment market, plus a publicly financed nutritional program for low-income people.¹³

Thus, with future demand for agricultural products precarious in the face of a fairly certain maintenance of the levels of production achieved during the interwar years and World War II, it is not unlikely that the Nation's farm plant will find itself over-extended and its manpower not fully utilized.

Part Two—Farm Habilitation Perspectives

In the light of historical trends in agricultural manpower requirements and of the projected manpower needs in farming in the years ahead, what postwar perspectives are suggested to the Farmers Home Administration? In what follows, this question is dealt with under three headings: a) case-load perspectives; b) tenure perspectives; and c) statutory perspectives.

A. Caseload Perspectives

1. The Importance of the Economic Setting

To begin with, the basic approach must be placed in its proper historical economic setting. The farm habilitation program of the agency is entering a period which is not subject to an emergency psychology. The period immediately ahead is to be sharply contrasted with that of the 1930's, when rural rehabilitation programs operated within a generally depressed economy. It will differ also from that of the more recent period when such programs operated in a war-stimulated economy.

In each of the two periods in the past, the exigencies of the situation retarded the achievement of long-run objectives of farm and rural habilitation programs. Conditions in the next few years should favor the elevation of a number of currently disadvantaged low income family farms to higher and more lasting standards of operating efficiency and levels of living. Such an economic environment should provide an opportunity for making adjustments that would establish these families as independent producers, reasonably able to withstand another economic slump without public assistance.

Should our economy in the next few years operate at approximately the current or at higher production and employment levels,

¹³ *What Peace Can Mean to American Farmers*, "Post-War Agriculture and Employment," Misc. Pub. No. 562, U. S. Department of Agriculture, May 1945.

three broad opportunities will be created favoring successful farm habilitation:

- a. An opportunity for better selection of habilitation applicants.
- b. Opportunities for non-agricultural employment for surplus farmers.
- c. Opportunity for a start in the direction of a planned non-commercial family-farm program for that segment of the farm population for which a program of commercial farm habilitation is neither feasible nor desirable.¹⁴

2. Welfare and Production Efficiency

In our advanced economy, the potentialities of welfare rest on the foundations of production efficiency. This is as true of agriculture as it is of other industries. Economic equality for agriculture, it has been observed, "rests upon farmers' ability to produce the needed food and fibers at substantially lower costs—lower costs particularly in terms of the human resources involved."¹⁵ All farmers must strive for the highest levels of production efficiency consistent with maintaining soil resources. Only if our entire agricultural plant operates at these levels of efficiency, will it be possible for farm people to enjoy incomes and services comparable to city living standards.

Agricultural planners are aware of the unbalance which exists within the farm industry, in that the bulk of the Nation's needs for farm commodities are today met by a comparatively small, but the most efficient, sector of agriculture. Agreement is general that agriculture should be encouraged to increase its efficiency more widely so as to enable all its producers to contribute more equally to the Nation's requirements. This is particularly applicable to the many disadvantaged low-income family-operated farms which today fail to compete in effectiveness with commercialized agricultural production. These less-efficient farms produce a standard of living nearer the subsistence level.¹⁶

It would seem that postwar agricultural adjustments lie along the following paths of endeavor: a) Mobilizing for efficient and profitable peacetime agriculture, particularly with respect to family

¹⁴ This point is more fully discussed under a later section (Part III, Section C) on "Surplus Farmers."

¹⁵ *Typical Family-Operated Farms, 1930-45, An Historical Look to the Future*, U. S. Department of Agriculture, April 1946.

¹⁶ For fuller discussion of the survival prospects of family-operated farms, see O. R. Johnson, "The Family Farm," this JOURNAL, August 1944; W. W. Wilcox, "The Economy of Small Farms in Wisconsin," this JOURNAL, May 1946; and the author's article "Family Farm Perspectives," *Land Policy Review*, Spring Number, 1947, U. S. Department of Agriculture.

operated farms; b) Developing non-agricultural opportunities for a higher proportion of our working population; and c) Leaving only enough in commercial farming to produce abundant food and fiber by efficient methods.¹⁷

3. Selection Policy

What application have these broad agricultural perspectives to a program of economic and social habilitation of low-income farms and farm families in the immediate postwar period? Primarily, it would seem, they have a bearing on the decisions to be made respecting a selection policy.

These perspectives reflect the existence of a combination of forces¹⁸ that are operating against the successful habilitation of family farms whose operations are quasi-commercial. They focus sharply the necessity for limiting the area of commercial habilitation to include only those family-operated farms which are not hopelessly disadvantaged under prevailing competitive conditions in agriculture. For only through such a carefully controlled selection would a postwar program of farm habilitation contribute toward broadening the efficiency of agriculture as a whole and toward reducing the number of its disadvantaged producers.

These broad perspectives indirectly suggest, also, the type of "farms" to be avoided under a program designed to lift family-operated farms to commercial efficiency. Many of the today's Census-designated farms are in reality small land holdings, and not family farms in the functional sense of the term. They are merely "furnish places" on the land for rural families who live as subsistence farmers or as workers employed primarily in other occupations. In 1945, about 1.4 million farms were in this class.

These holdings are not the type of units that can be easily habilitated by means of currently available techniques, even under the most favorable economic conditions. To attempt to lift these "farms" to a level of commercial efficiency is bound to be a long,

¹⁷ For fuller treatment of these points, see *Postwar Agricultural Policy*, Report of the Committee on Postwar Agricultural Policy of the Association of Land-Grant Colleges and Universities, October 1944; *Farm Opportunities in the United States*, prepared by Land Settlement Work Group of the Interbureau Committee on Postwar Agricultural Programs, U. S. Department of Agriculture, July 1945; Sherman E. Johnson, *Changes in Farming in War and Peace*, FM 58, U. S. Department of Agriculture, June 1946.

¹⁸ Technological advances that are reducing agricultural manpower needs, uncertainties in future demand for agricultural products, and the coexistence of these dynamic influences with a comparatively large number of uneconomic farm units and inefficient producers.

arduous, and dubious task from the viewpoint of achieving success. Moreover, it may prove to be not only too heavy a burden on an industry already overcrowded with marginal farms, but also a disservice to those farm families whose competitive position may not be sufficiently strong to survive despite all reasonable financial and supervisory assistance they may receive under a farm habilitation program.

This applies not only to the pseudo-family farms referred to above, but also to many other quasi-commercial family-operated farms. Their probable inability to respond quickly and favorably to habilitation assistance can largely be anticipated because contemporary farming is much more of a complex business than it was even a generation ago. Today, not only does it take a larger investment than in the past to become established on the size of farm that a family can easily handle from a labor standpoint, but it requires many more technical skills and much more management ability to successfully compete with units utilizing advanced farming methods and modern technology.

Through careful selection of applicants, however, a substantial number of operators of family farms can be found to meet the high qualifications for success demanded by the agricultural industry of today. Their present under-sized, undeveloped, understocked and under-equipped farms can be converted to efficient family farm units through timely extension of adequate long-term credit and through appropriate farm and home guidance designed to overcome their technical and management deficiencies. The actual number of such farms to be selected from among the applicants for habilitation assistance in each of the major agricultural regions of the country should be governed by the total number of producers necessary to be retained in commercial agriculture from the viewpoint of regional needs and of the Nation's and foreign market requirements.

B. Tenure Perspectives

The advantages of farm ownership have been well and validly established. Until recently, however, the disadvantages have been somewhat overlooked, or not sufficiently considered, particularly in connection with farm habilitation efforts.¹⁹

¹⁹ The introduction of a new category of eligibles under Title I ("Tenant Purchase Loans and Mortgage Insurance") in the Farmers Home Administration Act, namely, "owners of inadequate or unimproved farm units," may be interpreted as a recognition that ownership of a farm is not necessarily accompanied by favorable economic attributes.

Too frequently farm ownership has meant legal title to an uneconomically-sized and technologically backward farm unit located on poor land. Farm ownership, in such cases, has not led and cannot lead to farm security. Much evidence exists that farm ownership, in many cases, has been achieved at too steep a price—that is, at the expense of adequate farm units, of denial of necessary means of production, of insufficient earning capacity and of low living standards. Farm ownership arrived at with limited capital, especially in the case of family farms, can be as fundamental a cause for disadvantaged status and farm insecurity as can inferior tenure.

It would follow, therefore, that the important consideration in the habilitation of low-income family farms should be a de-emphasis on tenure patterns *per se* and a greater stress on improving the economic adequacy and on raising the operating efficiency of these farms so as to enable them to enjoy equal competitive advantages at each of their respective tenure levels. Only where a close relationship is found to exist between economic advantages of farm operations and tenure patterns should the latter be given special consideration in programmatic action directed at habilitating disadvantaged family farms.

There is one other merit for this perspective. It is evident that not all farms can be owner-operated. Other types of tenure will persist, and many in agriculture will probably have neither ownership nor tenancy status at all. Overstressing farm ownership tenure has a tendency to promote an indifference to conditions of farm people with other types of tenure or with no tenure at all. It has a deterring effect on efforts to better adjust farm families within their present tenure status. Our thinking and planning should be adjusted to the view that there is room in our agricultural economy for the development of various types of land tenure, provided all units at all tenure levels are economic in size and efficient in operation and management. Such a perspective need not lessen efforts to promote farm ownership of family-operated units.

C. Statutory Perspectives

Title I ("Tenant Purchase Loans and Mortgage Insurance") of the Farmers Home Administration Act specifically describes the type of recipients who are eligible for the direct and insured loans, namely: "only farm tenants, farm laborers, sharecroppers and other individuals (including owners of inadequate or underimproved farm units) who obtain, or who recently obtained, *the major portion of*

their income from farming operations.” Congressional emphasis on establishing efficient economic farm units is further evidenced by the provision that “no loan shall be made, or mortgage insured, for a) the acquisition, b) improvement, or c) enlargement of any farm unless it is of such size and type as the Secretary determines to be *sufficient to constitute an efficient family-type farm-management unit* and to enable a diligent family to carry on successful farming of a type which the Secretary deems can be carried on successfully in the locality in which the farm is situated.”

With the exception of the additions to this title indicated earlier,²⁰ both of these provisions in the Act have been carried over from the Bankhead-Jones Farm Tenant Act of 1937 and are not, therefore, an innovation in this type of legislation. They nevertheless assume sharper significance in terms of Congressional intent and Administrative execution because prevailing economic conditions are more favorable to their successful application than was formerly the case.

Interpreted against the current economic background, one might draw the following conclusions respecting the above two provisions under Title I of the Act: That they represent a Congressional mandate that no habilitation assistance is to be extended unless the would-be habilitant already has a farm, or can acquire a new tract, or can enlarge or add to his present farm acreage so as to possess a sufficiently large and potentially productive land base on which to attain operating efficiency, if certain other farm and management deficiencies were corrected. Conversely, it may be interpreted as discouraging efforts to habilitate families on potentially unproductive and uneconomic farms. The inference is strong that the authors of the statute were of the opinion that the administrative agency should continue to avoid setting up borrowers under conditions which in the past contributed toward chronic poverty on the farm.

It is particularly pertinent to recall today the findings of the Special Committee on Farm Tenancy made some ten years ago:

“Impoverishment, resulting from the operation of unduly small units, gives rise to forces which tend to perpetuate the problem. The elaborate systems of public aid which have been built up in recent years tend to overcome the operation of economic influences that would otherwise cause abandonment or liquidation of the weaker small units and thereby permit their consolidation with others. Public aid, thus administered, therefore tends to perpetuate farming on uneconomically small units, as well as on poor land.”²¹

²⁰ See footnote 2.

²¹ *Farm Tenancy*, Report of the President's Committee, February 1937.

Title II of the Act ("Production and Subsistence Loans"), the other substantive provision in the statute, does not present a problem in perspective. In essence, the program to be conducted under it is designed to meet either future emergency conditions or to serve immediate production and subsistence needs involving treatment of short-run factors. With the exception of eliminating the authority for making "grants" and substituting in its place the authority for making only "loans" in such cases, this title does not differ substantially from the short-term aspects of previous rural rehabilitation activities of the Resettlement and Farm Security Administrations.²²

Part Three—The Area of Farm Habilitation

A. The Over-all Area of Responsibility

A basic question now arises: How many family-operated farms which currently are operating on or below the margin of profitable commercial production should be raised to the level of competitive efficiency as our economy returns to normalcy in the next few years? The answer to this question poses the fundamental approach to a postwar farm habilitation program.

The first step in the pursuance of this approach would be to draw the correct conclusions from the presentation developed in Part I of this paper. They can then be used as guideposts in delimiting the potential area of farm habilitation. These conclusions may be set down as follows:

1. Under present farm technology and with anticipated increase in power mechanization and in other improvements, it appears likely that a smaller rather than a larger labor force will be needed in full-time farming in the years ahead.
2. The Nation does not need now and probably will not need in the immediate future any large amount of additional farm land to meet its agricultural requirements.
3. The number of people that agriculture can readily absorb in the postwar period, even under the most advantageous economic conditions, will be somewhat short of the number of those who will withdraw from farming. As a result, the agricultural industry will not be in the position to offer large-scale occupational and employment opportunities. This will apply not only to newcomers, but also to the young people already on farms who will become occupationally mature for independent farming.²³

²² In the current statute, the term "rural rehabilitation" and the concept of "needy" farmers are deleted. The Bankhead-Jones Farm Tenant Act of 1937 and previous annual appropriations acts included them.

²³ Estimates indicate that about 300,000 replacements (young people reaching

4. Technology, specialization and better operating and management practices may be expected to increase the size of the typical family farm and make it a more balanced and profitable organization. As such farms are enlarged, primarily by the process of combining small units, the number of full-time family-type farms will decrease.
5. In the light of efficiency trends in agricultural production, postwar opportunities for commercial farming on uneconomic units, with backward technology and with poor management practices are indeed dismal.

Within the framework of these conclusions it is possible to arrive at a more precise answer to the numerical problem raised above. Recent estimates indicate that the American population in 1950, producing a net national income of 150 billion dollars, could be amply supplied with the required food and fiber by an agricultural labor force of about 8 million.²⁴ This would constitute a reduction of about 2.5 million from the 1940 average and 1.8 million less compared with 1945.

Assuming the present ratio of about three operators and unpaid family workers to one wage laborer, the agricultural manpower in 1950 would consist of 6 million farm operators and unpaid family workers, and a monthly average of about 2 million hired laborers. If, furthermore, an average of 1.5 to 2 full-time workers per farm unit is assumed, exclusive of hired workers, a total of between 3 and 4 million commercial farms would comprise the farm plant of the Nation that year.

If the number of adequate commercial farms (both family and non-family operated) at the most recent Census could be determined, it would be possible to ascertain, out of the total number of commercial farms reported for the Nation as a whole, those which were operating at or below the margin of profitable production. A refinement could then be made of this potential area of habilitation in the light of the estimated agricultural labor force, and in accordance with the perspectives suggested in Part II.

To follow this procedure, it is necessary to arrange the Nation's farms according to one or more criteria which would reflect their economic position in the agricultural industry. The farm classifica-

the age of 25) will be potential competitors for the 180,000 vacancies a year during the decade 1940-1950, or about 1.7 men for each vacancy. Cf. C. Taeuber, *Replacement Rates for Rural-Farm Males Ages 25-69 Years, by Counties, 1940-1950*, U. S. Department of Agriculture, December 1944.

²⁴ *What Peace Can Mean to American Farmers*, "Postwar Agriculture and Employment," Misc. Pub. No. 562, U. S. Department of Agriculture, May 1945.

tion described in Table I is based on the gross value of production at 1944 prices. This index reveals the production strength of farm units, and indirectly reflects their available basic and collateral means of production.²⁵ In a general way, also, it indicates the imponderables associated with farm standards of living.

Using selected values as breaking points, the rough outlines of the American farm plant in 1945 appeared as follows:

- I. The Major Commercial Farm Sector: about 1.9 million adequate farms.
- II. The Minor Commercial Farm Sector: about 2.5 million low production farms.
- III. The Non-Commercial Farm Sector: about 1.4 million submarginal, subsistence, part-time, residential, and retirement units.

It is submitted that the over-all potential area of postwar farm habilitation is comprised of those "low production commercial farms" indicated in Class II above. If this area is restricted to those farms which in 1944 produced *primarily for the market*, the actual number within this class equaled about 2.1 million units in 1945. At the 1944 level of prices, the output of these farms had a value between \$600 and \$2,499.

In setting \$2,500 gross value of production as the upper limit and \$600 as the lower limit for farms which would be in need and worthy of habilitation assistance in the postwar years, these assumptions were made:

1. It was assumed that a farm which at 1944 prices did not have an output value of at least \$600 was operating with insufficient land, capital, equipment, motive power, and possibly inadequate or handicapped manpower—or had no intention to produce for the market. This assumption is supported by the fact that the 1.4 million farms with a reported output of less than \$600 contributed much less to the total national output of agricultural commodities than their numerical ratio in the farm industry. They constituted one-quarter of the total Census farms, but produced only 2.5 percent of the Nation's output.

Those 1.4 million farms sell too little to furnish an adequate living from farming or to maintain their farm enterprises. It is not likely that many of these farm families can support themselves without deriving their major income from off-farm employment. With some exceptions, they do not represent farms which might be

²⁵ It may be reasonably assumed that this was practically their maximum production ability in view of the all-out effort made during the war.

TABLE I. CLASS DISTRIBUTION OF FARMS IN THE U. S. IN 1945.
BASED ON GROSS VALUE OF PRODUCTS AT 1944 PRICES

Descriptive class ¹	Number (000 omitted)	Per- cent	Value of products (000,000 omitted)	Per- cent	Average value of product per farm (dollars)	Percent value of products sold at total value	Value groups
	1	2	3	4	5	6	7
I. Major Commercial Farm Sector.....	1,944	33.8	14,397	79.5	7,406	94.5	\$ 2,500 and over
A. Large Scale Non- Family Farms.....	289	5.0	6,517	36.0	22,550	97.9	\$10,000 and over
B. Medium and Large Scale Family Farms	1,655	28.8	7,880	43.5	4,701	91.6	\$ 2,500-9,999
II. Minor Commercial Farm Sector.....	2,407	41.8	3,260	18.0	1,354	75.3	\$ 600-2,499
A. Small Scale Family Farms.....	909	15.8	1,768	9.8	1,945	81.6	\$ 1,500-2,499
B. Semi-Commercial Family Farms.....	1,498	26.0	1,492	8.2	996	67.9	\$ 600-1,499
III. Non-Commercial Farm Sector.....	1,402	24.4	451	2.5	322	38.4	Less than \$600
A. Subsistence and Part- Time Farms.....	948	16.5	388	2.1	409	40.2	\$ 250-599
B. Residential, Retirement and other Nominal Farms...	454	7.9	63	0.4	139	27.0	\$ 1-249
U. S. (Classified) Total....	5,753	100.0	18,108	100.0	3,148	85.2	All Values

Source: 1945 Census of Agriculture.

¹ The descriptive classes associated with the indicated value groups are based on two criteria: (a) The degree of commercial operation conducted by the farms as a whole within each of the value groups; (b) the aggregate production value of these farms related to their numerical strength in the U. S. total.

Thus, all farms which sold at least 50 percent of their output by value are considered commercially operated in varying degree. If they sold at least 90 percent of their output, they are classified as commercial in a major degree. If they sold 75 percent but less than 90 percent of the output, they were assumed to be small-scale commercial farms. Semi-commercial farms are those that sold more than one-half but less than three-quarters of their product. Those which sold less than 50 percent of their output are grouped in the non-commercial sector. The output of the farms was assumed to be either sold or consumed on the farm, and that an effective choice existed as to the disposition of the product.

It is recognized that the descriptive classification is not perfect. Undoubtedly many of the farms in IIB (semi-commercial) may be classed as part-time farms under IIIA; also, a number of the 289,000 here described as "non-family farms" (under IA) are probably family-operated units. A number of other adjustments can probably be made to improve the descriptive classification.

raised to a level of paying efficiency without extraordinary effort and over a relatively long time.

2. It was assumed that a farm which at 1944 prices produced a value of at least \$2,500 succeeded in doing so only with sufficient land and equipment, and with the family working members effectively employed on the farm. This status applied to the approximately 1.6 million farms, largely of the family-type, which averaged about \$4,700 in gross value of products. It applied also to the nearly 290,000 farms, many of the non-family type, which produced no less than \$10,000 in value and averaged almost \$23,000 in gross income. These 1.9 million farms represented one-third of the U. S. total Census farms in 1945, but contributed four-fifths of the Nation's farm products by value.

On the basis of this record, the presumption is strong that these

1.9 million farms are profitable, going concerns. They probably possess the resources, the operating know-how, and the managerial ability to be able to produce a volume of agricultural commodities which at fair and stable prices would yield incomes sufficient for good living, for needed operating expenses, and for an ample margin of profit to maintain or raise net worth. It would appear that not many farmers in this sector would generally be in need of the type of habilitation assistance contemplated for disadvantaged low-income family farms under the Farmers Home Administration Act of 1946, nor would any substantial number of them be eligible under its provisions.

3. Eliminating the above 3.3 million farms as being beyond the desirable or practical scope of a farm habilitation program for principally commercial family farms, there remain about 2.4 million farm units which may fall under the provisions of the Farmers Home Administration Act. Some 367,000 farms in this total are units which produced primarily for home consumption and which, by the standards of selection assumed here, should be omitted from consideration for habilitation. This leaves about 2.1 million low-income family farms to represent, as previously indicated, the over-all target area for habilitation treatment in the postwar period.

This over-all target area is composed of two segments: a) the 911,000 farms which in 1944 produced a gross value of farm products between \$1,500 and \$2,499; and b) the approximately 1.2 million units with a gross value of output between \$600 and \$1,499. (See Table II.)

A large majority of the 885,000 units in the first segment main-

TABLE II. SUGGESTED MAXIMUM AREA OF RESPONSIBILITY AND ESTIMATED POTENTIAL CASELOAD UNDER A FARM HABILITATION PROGRAM IN THE POSTWAR PERIOD

Descriptive class and value group	Average value of output in 1944	Number of farms in 1945	Farms which produced primarily for sale in 1944		Estimated potential caseload	
			Number	Percent	Number	Percent
	1	2	3	4	5	6
1. Small Scale Family Farm (\$1,500-2,499).....	\$1,945	909,000	885,000	97	708,000	78
2. Semi-Commercial Family Farm (\$600-1,499).....	990	1,498,000	1,181,000	79	886,000	59
3. Subsistence and Part-Time Farms (\$400-599).....	480	514,000	228,000	44	57,000	11
Total (\$400-2,499).....	\$1,202	2,921,000	2,294,000	79	1,651,000	57

Source: 1945 Census of Agriculture.

aged to stay above the margin of production only because of extremely favorable price relationships which existed between 1940 and 1944. It is questionable whether at long term agricultural prices their limited production resources and facilities would enable them to continue to produce an average gross income of about \$1,950 (which they did in 1944), permit them to improve net worth, and take adequate care of family living.

The eligibility for habilitation of the 1.2 million farms in the second segment is even more apparent. At the high 1944 price levels for agricultural commodities, the best that these units could do was to avoid falling below \$600 in value of output. None of them reached a level of production as high as \$1,500.

It is not unreasonable to conclude that the farms which that year were able to show for their labor and investment an average gross value of only about \$1,000 were definitely operated by marginal producers. Since about one-third of their production was consumed on the farm, the average farm family in this group had a cash farm income of about \$700 with which to meet operating expenses, retire debts, accumulate savings for repair and depreciation, and at the same time provide for the living needs of its members. The marginality of these farms is reflected in the further fact that their aggregate contribution to the U. S. total value of agricultural production in 1944 was only 8 percent, although they comprised more than 25 percent of the Census farms.

It is evident that these farms did not have the combination of productive resources of land, labor, capital and working equipment to conduct a well-integrated family farm on a full commercial scale. Most of them probably suffered also from poor management and had an insufficient land base or land too inferior to permit most efficient operation. At best these farms operated on a semi-commercial basis, supplemented by cash income from off-farm employment. It was this supplemental income, coupled with the high level of farm prices in 1944, that probably enabled many of them to maintain their net worth and kept them from sinking below prevailing minimum living standards.

B. The Potential Caseload

How many of these 2.1 million low-income family farms will it be feasible to select for purposes of conversion into adequate-sized, modernly equipped and well-managed farms? It is evident that the

actual potential caseload would be somewhat less than this total. How much less will depend on the aggregate number that may be ruled out because of the policy and administrative decisions of the agency, and the number that may not desire the kind of assistance that the agency is prepared to offer. Below are a number of possible categories in which such farms may be found:

1. Applicants over a certain age level, say over 55 years;
2. Applicants who are not full-time farmers as evidenced, for example, by the number of days worked off the farm per year, or who do not obtain or recently have not obtained the major portion of their income from farming operations;
3. Applicants who may be discovered to have ability to obtain credit from existing conventional lenders, who might be better aided by the agricultural extension services, and those who will not apply for habilitation assistance;
4. Applicants having too few family workers to reach a level of operating efficiency on a family sized farm;
5. Applicants having land and other physical resources too inadequate to constitute an efficient family-type farm-management unit for successful farming on their present location;
6. Applicants otherwise considered not capable of reaching an efficiency level of commercial farm production, or, because of their extremely disadvantaged situation, of reaching such a level only after a prolonged period of assistance;
7. Applicants who may not have the intent nor the desired attitude toward full-time farming or who may not be capable, because of lack of experience or otherwise, of responding to proper guidance and supervision to become successful independent producers.

Assuming that the above types of cases will contract the agency's maximum area of responsibility by about 20 percent in the \$1,500 to \$2,499 class and by about 25 percent in the \$600 to \$1,499 bracket, the potential caseload would consist of about 708,000 farms in the first bracket and some 886,000 in the second, or an aggregate of 1.6 million farms. Should the agency choose to dig deeper and take, say 25 percent of the 228,000 farms estimated to have had an output of less than \$600, but not lower than \$400, and which produced primarily for sale, 57,000 farms may be added to the potential caseload. This would bring the total up to about 1,650,000 farms. (See Table II.)

With about 1,650,000 family farms ear-marked for habilitation in the postwar period, added to the 1,944,000 currently adequate farms, the American farm plant would be remodeled to consist of about 3.6 million units well-managed and operated, and well-

endowed with the basic resources and modern technology of production. They should be able to meet the requirements of a peacetime and reasonably stable economy, and provide the Nation's needs of farm products and those for export.

C. Surplus Farmers

A remodeled farm plant comprising 3.6 million efficient production units would leave about 2.2 million surplus "farmers." Less than one-half million (see Table I) of this surplus represents farms only in the nominal sense. Most of them are merely rural residences and country estates with an output of less than \$250 of farm products in 1944. For purposes of an over-all family-farm habilitation program these may be eliminated from consideration. The large majority of the remaining 1.7 million farms would represent producers not essentially needed in a postwar agricultural industry geared to efficiency.

Practically all of these surplus farms are today either subsistence, part-time or semi-commercial farms which are beyond practical prospects of conversion into efficient economic units of a self-sustaining character. The families on these units subsist on a very low level of income and at a very low level of employment. Many of the social problems in agriculture associated with poor nutrition, bad health, inadequate housing and substandard education are concentrated on these farms. Their economic difficulties will be aggravated as mechanization and other improvements in the technology of agriculture advance still further.

Some form of publicly supported program will be required to effect an adjustment of these 1.7 million families in the American economy. These farms comprise 5 or more million farm people—surplus for the purpose of an efficient agriculture. In planning such adjustments, the existence of several categories of this surplus should be recognized:

- a) Families who will wish to remain on the land on self-contained subsistence farms even though that will mean a depressed standard of living with little or no cash income from farming.
- b) Families who will want to dovetail their meager farm operations with non-agricultural employment.
- c) Families who will reconcile themselves to the status of wage earners in agriculture and in odd-jobs for the sake of retaining residence in farm and rural areas.
- d) Families who will be faced with migration from the land.

For the first three categories, consideration might be given to the feasibility of a non-commercial farm program. Such a program might conceivably take two forms: a) an economically-adequate subsistence farming and farm labor program; b) a controlled part-time farming program.

Perhaps some 700,000 surplus farm families can be adequately taken care of by a non-commercial farm program along the lines suggested. This would leave about a million farm families to be encouraged and guided to seek non-agricultural livelihoods either through conscious public and private effort or through normal absorption in an expanded postwar national economy.

The economic compulsion for an out-migration program stems not only from the present existence of a surplus of farmers, but also from the dynamics of farm population. It has been evident for some time that the rural segment of our population more than reproduces its own numbers for effective utilization in agriculture. In the next few years, as has been indicated, the major source of surplus manpower on the land is expected to come from replacements who will outnumber the available vacancies almost 2 to 1.

The success of a postwar farm habilitation program for the estimated 1.7 million potentially qualified and eligible low-production family farms will depend upon what happens in the non-agricultural sector of our economy. The development of industries, particularly in rural areas, and the expansion of employment opportunities for a substantial portion of the farm population in urban areas are just as essential for a technologically progressive agricultural industry and for rural prosperity as the retainment of a sufficient number of efficient producers in farming.

Conclusions

American agriculture has reached the stage of functional efficiency at which it can meet its economic obligations to the Nation as a supplier of food, feed and fiber with a comparatively small number of farmers. This augurs higher standards of consumption for the Nation's population and higher levels of living for agricultural producers—provided, however, this achievement in functional agricultural efficiency is translated into national welfare; and provided, further, that it is spread more uniformly over our entire farm plant.

The successful translation of agriculture's functional efficiency

into welfare terms requires the recognition of a) agriculture's achievements in production efficiency, b) the social consequences of that efficiency and c) the corresponding adjustments required in the light of these consequences.

As a result of the greater emphasis that will be placed on efficiency in farm production in the coming years, tending to make agriculture increasingly a commercial occupation, large scale readjustments in farm manpower are inevitable in the postwar period. Decisions will have to be made respecting the kind of farms we shall retain, the number we shall need, and the volume of labor that will be required to produce the Nation's needs of agricultural commodities. Such adjustments are of particular concern to any public agency charged with the responsibility for habilitating disadvantaged family-operated farms.

To an important degree, the continuance of the prevailing high tempo of the Nation's total economy will depend on what success we have in maintaining full production and employment in the non-agricultural sector. For "unless ways are found to solve the industrial postwar problems, what we do on the agricultural side will make little difference."²⁶ Should such solutions be found and applied, and should the expectant result materialize, conditions would be exceedingly favorable to apply in full measure the more fundamental provisions of the Farmers Home Administration Act of 1946 which are under Title I.

A family farm habilitation program in the next few years holds a promise of reasonable success only if the national and international economic climate is favorable to permit the pursuance of an approach which would a) stimulate needed and overdue long-run reforms in our farm economy and b) avoid perpetuating the present maladjustments in agriculture.

In large part, the Congressional mandate for undertaking this task is today firmer than it was in the past. For the first time, one of the principal agencies charged with its fulfillment, the Farmers Home Administration, has been given a statutory basis for existence. Time will tell whether it has been equipped with all the necessary tools to do the job successfully.

²⁶ M. Ezekiel, "Agricultural and Industrial Problems in Conversion from War to Peace," *Economic Reconstruction*, Ed. by Seymour E. Harris, New York, 1945.

NOTES

STATUS OF FEDERAL LANDS

PUBLIC officials and the general public have considerable interest in the extent, character, and use of the publicly owned and administered lands in the United States. This article is primarily concerned with an over-all discussion of the ownership and use status of Federal lands,¹ with brief consideration of events leading up to the present situation and some observations on public land problems.

Of the 1,905 million acres of land within the United States, approximately 560 million acres, or about 29 percent, is now in public ownership. Of the land in public ownership, about 458 million acres, or 82 percent, is in Federal ownership; the remaining lands—in the neighborhood of 100 million acres—are owned by State and local governments.

Ownership of Federal Lands

Altogether the Federal Government acquired, by grant, purchase treaty or conquest at various times some 1,400 million acres of

TABLE 1. DISPOSITION OF THE ORIGINAL PUBLIC DOMAIN LAND IN UNITED STATES

Method	Acres
	(Millions)
Patented to homesteaders	285
Granted to States	225
Granted to railroad corporations	90
Sales and other disposals	302
Total land disposals	902
Present public domain	408
Original public domain	1,400

public domain land. There never was any public domain land in the original 13 States and Texas. About 39 million acres in grants and claims of citizens of Louisiana Territory, California, and New Mexico were recognized by the United States Government after accession of these territories. Through sale, grants, preemption and homesteading, all but 408 million acres of the 1,400 million acres has been disposed of primarily for land settlement, internal de-

¹ All statistical data used in this manuscript compiled by the Division of Land Economics from the records of various Federal agencies.

velopment, and as a source of revenue. Table 1 gives a summary of the methods used in the disposal of the original public domain land.

Throughout our land policy deliberations there has been an underlying attitude, with but few exceptions, that individual self-interest expressed through private land ownership would bring about the maximum production of wealth and the highest degree of social welfare in the use of our land resources. Occasionally a protest was raised against the laissez faire doctrine as applied to public lands, but these were futile in view of the dominant spirit of the pioneer to secure free land. About 71 percent of the land in the United States has passed into private ownership and, except for occasional tracts, the remainder of the original public domain is largely ill-suited to private ownership. Nearly all the land suited for private ownership was homesteaded under the various homestead acts or sold before entries were withdrawn.

It is indeed fortunate that we as a Nation had so much good land available for settlement, for this was a real force in the development of strong democratic governments. However, in the disposal of so many different types of land as existed within the public domain it is not surprising that a substantial acreage that was neither physically nor economically adapted to arable agriculture passed into private ownership.

During the nineties and the first decade of the present century, concern over the increase in population and the dwindling resources led to the setting aside, from time to time, of public domain land for public purposes. For instance, in 1891 we forbade further sale of land and began to reserve public land for timber purposes. This was the forerunner of the first conservation movement under the leadership of Theodore Roosevelt and Gifford Pinchot. Furthermore, measures to reclaim swamp land and irrigate millions of acres of dry land were energetically promoted.

In addition to the public domain, the Federal Government has acquired about 50 million acres by purchase, gift, and similar processes. Much of this land was in the nature of submarginal farm land acquired by the Federal Government during the thirties, in part for the purpose of relieving the impoverishment of agriculture and rural life in numerous areas. These purchases were further motivated by the need for building up our land resources, particularly forest and grazing lands, recreational developments, and needed

watershed protection. At that time, a very significant force in arousing interest in land purchase programs was the thousands of acres of land that were reverting to State and local governments through tax delinquency. This problem was serious enough between 1925-1940 to give rise to the term, "the new public domain." During World War II, seven million acres of land were purchased by the Government for military uses. Of this land about 1.5 million acres have been declared surplus and are in the process of disposal. Another million acres is leased to farmers for temporary use.

Land originally in public domain, including Indian lands, comprises approximately 90 percent of the present total Federal holdings. The other 10 percent was obtained, primarily from private owners, under various acquisition programs. Public domain land and acquired lands are quite distinct in certain administrative respects and in the application of public land laws, and must be considered separately in any over-all study of Federal land utilization and management.

As indicated by Figure 1, the great bulk of the Federal land is in the eleven Western States. It is not suited to arable farming except where relatively small areas may be reclaimed. Six States have over 50 percent of their area in Federal land; 34 States show less than 5 percent Federal land, of which 11 States have 1 percent or less.

From 1920 to 1930 public land ownership declined. About 40 million acres were taken up in homesteads, although much of this land was not suited to private ownership. During the depression of the thirties, there were many failures and much farm abandonment both in the public land States as well as in the Eastern States. During the period from 1930 to 1940 the increased interest in public purchase led to the acquisition by the Federal Government of about 25 million acres, and several million acres by the States and counties. Beginning in 1939 and continuing to the present (1947), the Federal Government has sold a considerable acreage of land acquired in the thirties for resettlement purposes; and the States and counties have disposed of approximately 75 percent of land they had acquired through tax reversion and defaults on loans through State land and farm credit agencies.

The acreage of public domain land and of acquired lands held by each of the 13 principal Federal administering agencies in 1945 is shown in Table 2.

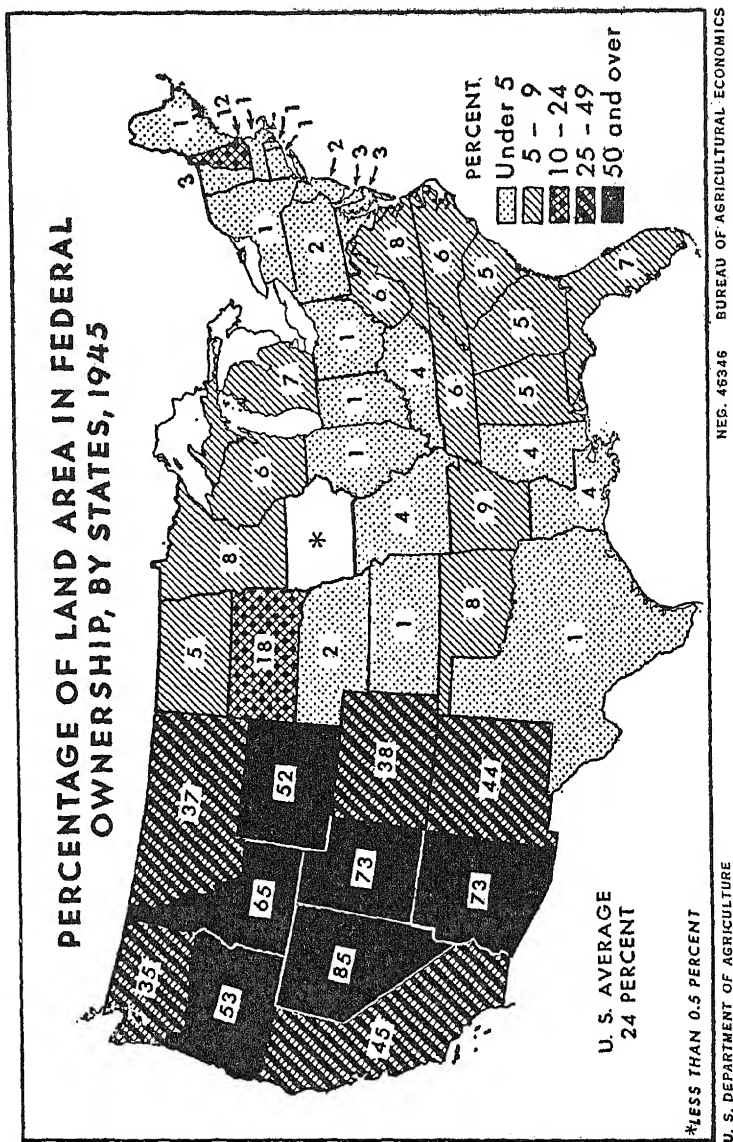


Fig. 1.—Federal land ownership, by States, 1945.

TABLE 2. AREA OF PUBLIC DOMAIN AND ACQUIRED LANDS, BY FEDERAL ADMINISTERING AGENCIES, 1945

Administering agency	Public domain land		Acquired lands		Total	
	Acres	Percent	Acres	Percent	Acres	Percent
Bureau of Land Management	180,353,766	44.2	0	0	180,353,766	39.4
Forest Service	134,087,148	32.9	23,793,083	48.0	157,880,231	34.5
Office of Indian Affairs	54,905,200	13.5	1,671,366	3.4	56,576,626	12.4
National Park Service	11,569,477	2.8	2,032,712	4.1	13,602,189	3.0
Bureau of Reclamation	9,238,851	2.3	643,553	1.3	9,882,404	2.2
Soil Conservation Service	258,334	0.1	7,217,970	14.5	7,476,304	1.6
Fish and Wildlife Service	2,104,400	0.5	2,462,481	5.0	4,566,881	1.0
Farm Security Administration	116		541,509	1.1	541,685	0.1
War Department	14,870,872 ¹	3.6	8,764,671 ²	17.6	23,435,543 ³	5.1
Navy Department	561,407	0.1	1,146,098	2.3	1,707,505	0.4
Agricultural Research Administration	104,426 ⁴		28,159	0.1	132,585	
Tennessee Valley Authority	1,308		1,123,669	2.3	1,124,977	0.3
Other agencies ⁵	70,211		160,003	0.3	220,214	
Total	408,015,466	100.0	40,575,334	100.0	467,590,800	100.0

¹ Includes public land transferred by other Federal agencies.

² Includes approximately 2½ million acres flood control and military lands held before the war, 5.6 million acres purchased from private owners during the war, and over ½ million acres of donated and acquired lands transferred from other Federal agencies.

³ Includes Departments of Justice, Commerce, State, and Treasury, and independent offices.

⁴ Less than .1 percent.

⁵ Excludes a substantial acreage of public land used under temporary permit.

The Forest Service, Bureau of Land Management, and the Office of Indian Affairs have jurisdiction over about 86 percent of the Federal lands. In general, the primary uses of Federal lands are indicated by the administering agency. However, considerable areas of land are used in two or more ways simultaneously. For instance, in a single area one may find grazing, forestry, recreation, fish and wildlife propagation, and a watershed for municipal or irrigation use. This multiple use of land is often a characteristic problem of public land management.

Primary Uses of Federal Lands

The type and intensity of uses of Federal lands are conditioned by the physical characteristics of the different types of land, their location and the general level of economic activity in the United States. For instance, much of the land used for grazing is at high elevation, dry or arid in character, and parts of it, at times, subject to extreme variations in rainfall. A major part of this land is used in connection with private farms and ranching units which often have valley or irrigated lands that supply much of the winter feed. The interdependence of private and public lands in the range sections of the West requires coordination and considerable cooperation between Federal agencies and private users, particularly where

there is danger of overstocking during certain periods. Much of the publicly held land is used in private enterprises as freely as if it were in private ownership. And if forest land and other critical watershed areas were in private ownership, one could not expect private owners to use it in such a way that watersheds would be protected for the owners of lands dependent upon the protected watersheds.

Table 3 shows the approximate present area and percentage distribution of Federal lands in crops, forestry, grazing, service areas, and barren and swamp land.

TABLE 3. PRIMARY USES OF FEDERAL LANDS, 1945¹

Use	Area	Proportion of area
	Million acres	Percent
Cropland ²	4	0.9
Forestry (excludes forested areas reserved for parks, recreation, military, wildlife, and water supply areas)	146	31.9
Grazing (excludes forest lands grazed and open land reserved from grazing for special purposes, i.e., parks, etc.)	202	44.1
Service areas (principally special reservations as follows: parks and recreation areas, 26; military reservations, 23; reservoir and water supply areas, 12; wildlife refuges, 4; and other service, 1 million acres)	66	14.4
Barren land, brushland, swampland, and other land	40	8.77
Total Federal land	458	100.0

¹ Surface utilization only. Large areas have additional value for minerals, etc.

² A large part of cropland lies in Indian reservations.

About 14 percent of all Federal lands are reserved primarily as "Service" areas—parks, recreation areas, military lands, and other similar uses. Although within these areas such uses as forestry and grazing are often practiced, these uses are subordinated and controlled to the benefit of the primary use. Outside these reservations, the area of Federal lands used for forestry is about 146 million acres or about one-third of the total, and for grazing slightly over two-fifths.

The major part of the forest land is in national forests and considerable acreages are in vacant public domain areas and Indian reservations. Relatively small areas are in national parks or in combination with some other use. These lands serve not only for timber production but for grazing, recreation, and the production of wildlife and watershed protection. Twenty-seven percent of the Federal lands used for grazing are administered by the Forest Service.

There is need to keep current an inventory of the ownership and use of all public lands. This information is now scattered among a host of Federal and State agencies and often is not even kept up to date in tabular form. Furthermore, as a step in the management and development of public lands more information is needed on the characteristics and use capabilities of different types of land.

Land Use Problems

During the twenties and early thirties, farm surpluses, submarginal land use, tax delinquency, farm foreclosures and other serious rural problems arose. To meet these social maladjustments, programs were evolved for crop acreage control; soil, forest and water conservation; farm-home ownership; liberalized credit; farm mortgage moratoria, homestead tax exemptions, submarginal land purchase. The public domain was practically closed to further settlement. Grazing associations and soil conservation districts were established as devices to develop orderly and efficient use of land. Legislation was enacted in more than a dozen States, enabling local units of government to zone rural lands. Such are some of the features of the land program of the thirties.

In regard to Federal lands, there is now an active demand for legislation directing the sale of much of the remaining public domain and acquired lands, the transfer of the public domain to State ownership, or for the transfer of special privileges, such as grazing permits, into vested rights of private individuals or of groups. Funds for the management of grazing lands have been drastically cut. Although land policies are rooted in the past, they are very much affected, at any given time, by the economic conditions to which they are exposed. One might now surmise from these demands and restrictions that all our public land problems would be solved, provided the Federal Government would dispose of or be restricted in the control of its lands. Obviously, it cannot be taken for granted that Federal ownership of land in itself assures sound land use or always necessarily means the adoption of forward looking land policies. The early disposal programs were, according to Hibbard, "inextricably interwoven with politics," and fraud and speculation were common. However, under conditions that existed, the Federal Government has done a pretty good job in the disposal, management and administration of its lands. Especially during the past 15 years very significant progress has been made in the management and development of Federal lands.

There are scattered and isolated tracts of the public domain that might better be in private ownership. But the great bulk of this land is better suited to public than private ownership because: (1) low and variable annual land incomes make private ownership very hazardous—the situation, for example, that exists in grazing areas; (2) the high risk and deferred income characteristic of land uses, such as forestry, in areas of low productivity; (3) the existence of a situation, as in recreational and watershed protection areas, where government, acting for society as a whole, undertakes obligations that private individuals cannot financially assume; and (4) situations where private ownership is often not possible simply because property taxes are too high to permit sustained ownership of low value land. Thus, even if such land were transferred free into private ownership, thus avoiding consideration of initial investments and interest charges, the income obtainable from its use would likely be insufficient to insure continued successful private ownership. This land would then revert to State or county governments from inability to pay taxes. Its alienation would preclude for all time the possibility, except by purchase, of again getting the land into Federal administration.

V. WEBSTER JOHNSON

Bureau of Agricultural Economics

PRICE—INCOME EFFECTS OF A FOOD ALLOTMENT PROGRAM*

THIS note follows as a logical sequel to the paper "Farm Price Gyration—An Aggregative Hypothesis" which appeared in this JOURNAL, May 1947. The present analysis is of an immanent nature; we accept the basic concepts of the earlier article and develop them further here through the vehicle of the Food Allotment Program. That program provides us with a purchasing power stimulus, and it is our purpose to trace out the effect of that stimulus on farm prices and income. We employ the Food Allotment Program as a stimulus for two principal reasons: (1) analytically it is a convenient device for dealing with an initial injection of purchasing power directed against food; it provides something approaching the controlled conditions necessary to careful analysis,

* The views expressed here are those of the authors alone and do not necessarily represent the official views of the Food and Agriculture Organization of the United Nations or of the Bureau of Agricultural Economics of the United States Department of Agriculture.

and (2) it seems important to have an informed opinion regarding the economic consequences of what could be a major part of the national farm program, i.e. the Food Allotment Program.

We are not concerned here with the essential rightness or wrongness of the program. Neither are we concerned here with the nutritional aspects of the program, since considerable literature has already been forthcoming on that aspect. Finally, we will not be concerned with the administrative feasibility of the program, for the authors are convinced that any program can be administered successfully provided enough people want the program. Thus, our field of inquiry is narrowed down to the price and income effects of interposing a Food Allotment Program in the distributive system between the farmer and the consumer.¹

But before we can observe the consequences, on paper at least, of a Food Allotment Program, we must know something of the nature of the economic situation in which the program will be operating. The consequences of an economic action cannot take place in a vacuum. Therefore, we must postulate an economic situation and drop our program into it. The possible situation we have in mind is a moderate business depression in 1948. This is not a forecast in terms of probability; it is a working assumption in terms of possibilities.

The economic dimensions of such a moderate depression might run as follows: Gross National Product, 170 billion; Income Payments to Individuals, 135 billion; Disposable Income, 120 billion; Consumer Price Level, 135; Prices Received by Farmers, 170; and Unemployment up to 8 million. Further, this is conceived to be a stable situation, one in which the same general pattern is carried along through all four quarters of the year. In other words, the total economy is neither expanding nor contracting through that year, but is, in Keynesian terminology, in equilibrium with 8 million unemployed.

We are now tooled up for the analysis that follows: we have a stimulus in the form of a purchasing power injection, we have a vehicle in the form of the Food Allotment Program, and we have a bench mark in the postulated 1948 situation. The question to be answered now is—What will be the effects on prices received by

¹ It may be worthwhile for those who are unfamiliar with the program and those wishing to refresh their memories regarding the mechanics of the program to read the article by Rainer Schickele entitled "The National Food Allotment Program," this JOURNAL, May 1946.

farmers and farm income from placing in operation a Food Allotment Program of a given size, say \$1 billion?² When we say \$1 billion we mean net or additional food expenditures of \$1 billion. To effect additional food expenditures of \$1 billion the total cost of the program may total say \$1.2 billion, depending on the nature and magnitudes of the leakages and administrative costs involved.

The demand and output functions isolated in the article "Farm Price Gyration" become the principal operational instruments of this analysis. But these empirically derived functions unfortunately do not have common axes; the variables employed in the derivation of the two functional relationships differ. Therefore, the problem of combining these two functions in an operational system is the problem of formulating common axes.

Identifying the index of per capita consumption on the X axis of the demand function with the index of aggregate food output on the X axis of the output function does not prove too troublesome. The demand function given to this analysis represents, for any given period of time, the relationship between (1) the ratio of retail food prices to nonfood prices and (2) the average domestic consumption of food per person with the effects of income and time removed. That the function is timeless or simultaneous is of extreme importance to the analysis that follows.

The conversion of this *average* domestic demand function to a *total* domestic demand function is relatively simple. It involves simply the multiplication of average food consumption at the various levels of the price ratio, by a population constant.

Our next problem is to identify total food consumption (domestic and foreign) with total food output in order that we may superimpose the total food demand function on the total food output function. To effect this identity we must add to total domestic food consumption the volume of food for exports and for the armed forces and then adjust for changes in food stocks. Assuming that changes in food stocks in the period under consideration are so small as to be negligible, we neglect the latter adjustment. As to the addition of food for export and the armed services to total domestic consumption, this is accomplished at each indicated level of con-

² A situation with 8 million unemployed as postulated above would easily absorb additional food expenditures of \$1 billion employed in raising the consumption of all persons in the U. S. to the basic food allotment. Every estimate of the food costs of a Food Allotment Program (published or unpublished) that the authors have seen for a depressed situation such as we have described runs considerably in excess of \$1 billion and often closer to \$2 billion.

sumption by assuming the quantities of food demanded for export has a negligible effect on the slope of the domestic total demand function for food.

With the aid of some rather heroic assumptions then, we have succeeded in identifying total food consumption (domestic, foreign and military) with total food output. Having done this, we now must find a relationship between (1) the ratio of retail food prices to nonfood prices and (2) prices received by farmers for food. When this is achieved, we can superimpose the total demand function on the total output function. Unfortunately the relationship which we seek is not too well defined for all years for which data are available. In recent years, however, under conditions which closely approximate those for the period considered in the analysis, a rather well defined relationship does exist. Using historical data for the recent high level years 1940, 1941, 1942, and 1943, then skipping the years of effective wartime controls 1944 and 1945, and finally using the last half of 1946, we obtain a good straight line relationship between the index of prices received for food and the ratio of food prices to nonfood prices—a relationship which permits us to move back and forth between the two variables (1) ratio of food costs to nonfood costs, and (2) prices received for food.

Corresponding points for these two variables are indicated on figure 1 where the ratio of food to nonfood costs is shown on the left-hand axis (Y) and the index of prices received on the right-hand axis (Y_1). For example, reading off the straight line relationship of the ratio of food prices to nonfood prices to prices received for food, a price ratio of 100 corresponds to 113 on the prices received index. It is on this basic relationship that much of the following analysis is constructed, and the authors recognize that informed judgments will vary regarding the correctness of that relationship.

Before fixing the position of the historical output function EE for the period 1943–46 of figure 2, taken again from the article "Farm Price gyrations," the decision was made to reduce the slope of that curve to perfect inelasticity. Since the vertical axis of this function or the demand function had to be changed in line with the common axis argument, it was found convenient to reduce the slope of the output function to perfect inelasticity. For that condition would permit the use of any scale on its Y axis. And there would appear to be adequate justification for reducing the slope of the output function EE to perfect inelasticity. First, growing conditions

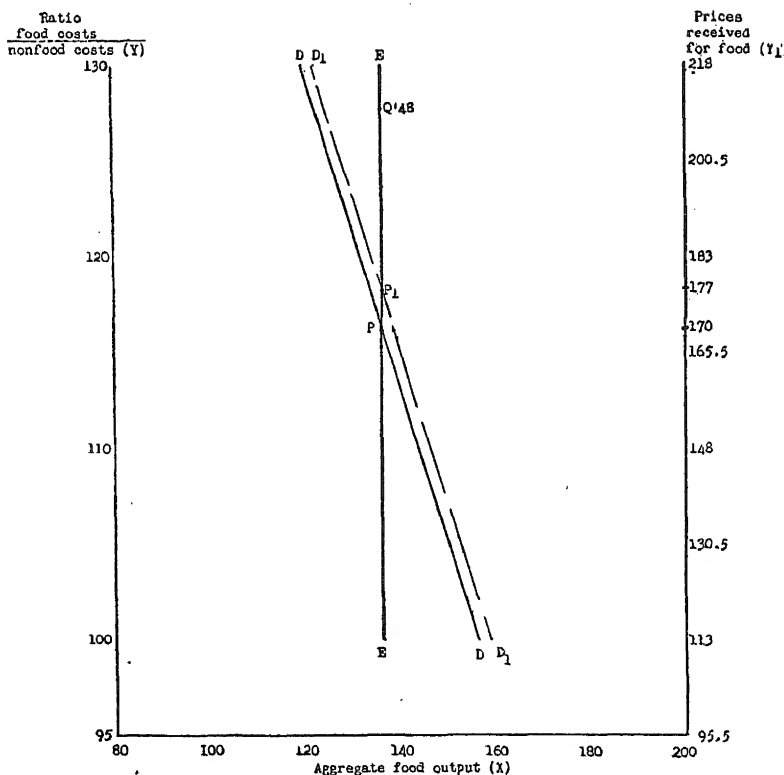


FIG. 1.—Aggregate output in 1948 (point *Q'48* falling along the output curve *EE* at 210 on the prices received index—the responsible price in this case) moves into consumption at price 170 indicated by point *P*. With the introduction of the Food Allotment Program (food expenditure of \$1 billion) the demand curve *DD* shifts to *DD1* and 1948 output sells at a price 177 or *P1*.

in the year 1943 were below average and the consequent reduction of total food output influenced the fitting of the curve *EE* with a slight positive slope, whereas had growing conditions been average in 1943 total food output would have been greater and the slope of the curve non-existent. Second, the historical output functions *BB* and *CC*, from figure 2 "Farm Price Gyration," are perfectly inelastic indicating that a perfectly inelastic output function is not atypical but rather the norm. In figure 1 of this article, therefore, the output function *EE* is presented in a perfectly inelastic form and placed at the point 136 on the index of total food output. Thus we have the position and the slope of the output curve determined for purposes of this analysis.

The slope of the average demand function is unaffected by its

conversion to a total demand function. Therefore the vertical axis, as shown in figure 1, is identical with that shown in figure 3 of "Farm Price Gyration." The problem is then to give the demand function an internally consistent position with respect to the output function. As previously stated, it is assumed here that (1) all food produced in one year is consumed in that year—that stocks are neither accumulating or being used up, and (2) that the volume of food shipped out of the country as exports has no effect on the slope of the total demand function.

Bearing in mind the nature of the adjustments made in converting the average domestic demand function to a total demand function, we are now in a position to complete our analytical framework. From relationships outside our operational system, it is estimated that the index of prices received for food in 1948 with a disposable income of \$120 billion would approximate 170 (1935-39=100). A point of intersection of the demand and output functions is thus provided. Output was estimated at 136 percent of the 1935-39 level; the farm price index at this level of output was estimated at 170; and since we have assumed that all food produced in 1948 is consumed, we superimpose the total consumption function on the output function so that it passes through the point ($X=136$, $Y_1=170$). The demand function, therefore, is now related to the output function in an operational system and we are ready to shift the demand function in response to an increase in food expenditures made through the Food Allotment Program.

The mechanics of shifting the total demand curve in response to an additional \$1 billion spent on food through a Food Allotment Program may be described as follows. First, it is estimated from past relationships that food expenditures will amount to about 20 percent of total disposable income in 1947. This conclusion follows from the assumption that additional food expenditures made through a Food Allotment Program behave normally *once introduced into the income stream*. In other words, no peculiar income effects result from the food allotment type of expenditure. This may appear unreal, but the authors could not discover any logical reason for not using past relationships when directly confronted with the problem. Second, in setting up the multiple regression analysis for the purpose of removing the income effects on total demand for food in the article "Farm Price Gyration" the factor "disposable income" was considered. The problem therefore re-

solves itself into one of translating \$1 billion of food expenditures into total disposable income, so that the effects of that expenditure may be reflected in an increase in the index of average civilian food consumption, the independent variable in the multiple analysis. Using the 20 percent leverage factor, the equivalent increase in disposable income is \$5 billion. Since the regression coefficient of the income variable was found to be .221 in the multiple analysis, this increase of \$5 billion in disposable income effects a 1.1 rise in the index of average civilian consumption ($\$5 \text{ billion} \times .221 = 1.1$).

Having measured the effect of a \$1 billion food expenditure program on average civilian consumption, we must then concern ourselves with translating this effect into the total demand function which forms a part of our operational system.

It will be recalled that, in fixing the position of the demand function, we went outside the operational system to estimate the level of farm food prices at 170. Next we superimposed the total demand function on the fixed output function, effecting an intersection at point P (see figure 1). Reading off the left-hand axis of figure 1, we find that the total demand function at the point of intersection yields a retail price ratio of 117. Now, using again the multiple regression analysis, which was employed to determine the net effects of a \$5 billion increase in disposable income on average civilian food consumption, we find that with a price ratio equal to 117, disposable income equal to \$120 billion, and population estimated at 109.8 per cent of the 1935-39 average, average civilian consumption approximates 111.1 percent of the 1935-39 average. Thus an average civilian consumption of 111.1 corresponds to a total food consumption of 136.

But an average domestic consumption equal to 111.1 percent of the 1935-39 average, with population estimated at 109.8 percent of the 1935-39 average, is equivalent to a *total domestic civilian consumption* of 122 percent of the 1935-39 average (111.1×109.8). The difference then between total consumption (domestic, military and exports) and total domestic civilian consumption at the point of intersection is 14 points ($136 - 122$).

We have already estimated that an increase of \$5 billion in disposable income would effect an increase in average domestic consumption of 1.1 points on the index (from 111.1 to 112.2). Now since the population is assumed to remain constant, total civilian domestic consumption as affected by the increase in income becomes 123.2 percent of the 1935-39 average ($112.2 \times 109.8 = 123.2$). Add-

ing to this figure the 14 points which represents military consumption and exports, we then have an index of *total consumption* (domestic, military and foreign) equal to 137.2.

The net effect of the \$1 billion spent on food through a Food Allotment Program, therefore, is a shift in the demand function 1.2 points to the right for any given price. The intersection of the shifted demand curve D_1D_1 with the fixed output curve EIE thus determines the price effects of a given expenditure through the Food Allotment Program in terms of the conventional prices received index. Specifically, the shift in demand in this case forces the prices received by farmers for food to move upward on the index from 170 to 177—or an upward movement of 7 points. Stated differently, aggregate food output in 1948 ($Q'48$ on figure 1) would move into consumption at a price level of 177 instead of 170 by reasons of the defined expansion in demand through the Food Allotment Program.

In the argument just presented it is assumed that stock holdings, principally feed and food grains, are held constant. But should 1947 be another large relief feeding year, so that stocks in the United States remain at a bare minimum, it is entirely possible that dealers in 1948 will make some attempt to enlarge their stocks of non-perishable foods. In that event the indicated upward movement of 7 points on the prices received index would be clearly too little. The building up of food stocks in 1948 would in effect shift the demand curve further to the right than that indicated in figure 1 and prices would go up accordingly. But since we do not know what may take place with respect to stocks, we hold this highly unstable variable constant and observe the expenditures effects on price alone. We recognize, however, that whatever happens to the net stock position in 1948 will seriously affect the index of prices received.

An increase in prices received for food from 170 to 177 in response to a \$1 billion expenditure through the Food Allotment Program may seem unduly small. But, when we test this price response against historical experience, it does not appear to be out of line. In those periods in which output held fairly constant and the index of average per capita consumption moved up or down by something approaching 1 point, which represented a sizeable shift until the war years, the response on the prices received index tended to vary from 5 to 8 points. On the basis of past experience we conclude that an upward movement in prices received for food of 7 points associated with a 1.1 increase on the index of per capita food consumption

is entirely reasonable, under ordinary conditions.

In our postulated situation we have held output constant;³ consequently the whole force of the expanded demand for food has been directed into an upward movement of prices. The individuals participating in the Food Allotment Program have simply come into the market with an expanded effective demand for food, and have bid supplies away from nonparticipating families. And in bidding supplies away from nonparticipating families, the price of food in the aggregate has increased.

What does this rise in the prices received index for food mean in terms of farm income? In terms of cash receipts this price rise may be translated into an additional \$610 million to producers. This is estimated as follows. We have already determined that the shift in the demand curve resulted in an approximate increase of 7 points in the index of prices received by farmers for food. Moreover, output was held constant at 136 percent of the 1935-39 level. Since the index of prices received is also on a 1935-39 base, an increase in 7 points implies an increase of approximately 10 percent (7×136) in cash receipts over average receipts in the period 1935-39. Average receipts from food marketings amounted to \$6.1 billion in the period 1935-39, consequently 10 percent of this figure gives us \$610 million. *And since farm producers have experienced no additional costs*—output is held constant—it logically follows that these additional cash receipts of some \$600 million represent additions to *net farm income*.

The price, quantity, and income effects of \$1 billion expended on food through a Food Allotment Program under the assumed conditions may be restated as follows: (1) the quantity effect is zero since the position of the output function has consciously been held constant, (2) the price effect amounts to a movement of 7 points on the index of prices received or in our case an upward movement from 170 to 177, and (3) farmers receive in addition to their normal receipts some \$600 million as net income.

WILLARD W. COCHRANE
ROBERT H. MASUCCI

*Food and Agricultural Organization
Bureau of Agricultural Economics*

³ A full treatment of this problem calls for an analysis of the movement of the output function. For the output function is not, on the basis of historical experience or the logic presented in the paper "Farm Price Gyration," likely to remain positionally fixed over the next few years. The authors, however, lacked the time to develop such a full treatment. This note concentrates simply on the combining of the output and demand functions in an operational system.

HAYMAKING JOB ANALYSIS

A DETAILED study of hay harvesting methods was made on 30 Michigan farms during the summer of 1946. The purpose of this study was to determine (1) the amount of man labor required for haymaking on farms using different types of equipment, (2) the factors causing variation in the amount of labor required on farms using the same type of equipment, (3) the rates of performance and other factors affecting the choice of haymaking methods and equipment, and (4) the ways of reducing the time, energy, or both required for hay harvesting.

The most time-consuming part of the haymaking job was the moving of the hay from the windrow to the mow. Therefore the emphasis of the study was placed on this part of the haying work. The farms studied were classified by the type of equipment used to handle the hay in the field. In Michigan there are five major types of equipment used: hay loader, buck rake, field chopper, one-man baler, and three-man baler.

Selection and evaluation of the sample

The procedure of selecting the farms to be studied followed a course of convenience rather than a statistical sampling procedure. County agricultural agents in Central Michigan were asked to send a list of farmers in their counties who were using the different types of equipment. These farmers were contacted and a schedule set up to visit as many farms as possible on the dates the farmers planned to do their haying work.

The method of obtaining the sample may have led to some bias in the results as the county agents were possibly better acquainted with the more experienced operators of the various machines. No adequate means of evaluating the sample is available, but it is felt that the data represents a group somewhat above the average of all farms. However, since the same factors affected the selection of all the farms in the sample, the comparisons between groups of farms in the sample should be reasonably accurate.

Probably of greater importance in determining the reliability of the results is the number of farms included in the study. With only one worker it was impossible to obtain more records during the haying season. The averages should be viewed as an indication of the relationships rather than proof.

Collection of data

The research worker spent approximately one half a day on each farm during the time hay was being hauled. In each farm the following information was recorded:

1. General information on the conditions affecting the haying work.
 - (a) Description of field; size, shape, topography, and distance from barn.
 - (b) Kind of hay, when cut, when raked, size of windrow, and raking pattern.
 - (c) Kind and type of power and equipment used.
 - (d) Type and weight of hauling vehicles.
 - (e) Haying crew and principal job of each member.
2. Detailed record of the haymaking operations. The operations were divided into the following elements:
 - (a) Travel from barn to field entrance.
 - (b) Travel in field.
 - (c) Preparation for loading.
 - (d) Loading.
 - (e) Unhooking and preparing to travel.
 - (f) Travel out of field.
 - (g) Travel from field entrance to barn.
 - (h) Unloading and storing.

These elements were timed with a stop watch for each load observed on the farms included in the study. In addition to the time record, the number of men involved in each element was noted as well as the distance the equipment and crew traveled. Each load was weighed on a pair of portable scales. The observer also noted and recorded as much information as possible on the way the work was done on each farm.

Analysis of data

Prior to the analysis of the field data, the various pieces of equipment were evaluated on the basis of their labor saving possibilities. The major operations in the job of haymaking were listed and each machine was considered in terms of the operations for which the machine reduced or eliminated man labor. The list of operations considered and the results of the analysis give an indication of the labor saving possibilities of the equipment. The operations considered were:

1. Bunching
2. Elevating to hauling vehicle
3. Loading

4. Transporting to barn
5. Unloading
6. Transporting to mow
7. Storing in mow

The hay loader eliminates the need for bunching hay and substitutes mechanical for man power in elevating the hay to the hauling vehicle. It does not affect greatly the hauling or the handling of the hay at the barn.

The buck rake eliminates the need for bunching and enables the operator to load and elevate the hay without hand labor. The buck-rake changes the method of transporting the hay to the barn and the unloading at the barn, but does not affect the work of storing in the mow.

The field chopper eliminates the need for bunching, and the hay is elevated and loaded entirely by mechanical means. At the barn the blower, which is a part of the equipment combination, elevates the hay to the mow and distributes it in the mow. The chopped hay adds to the problem of unloading at the barn. Some farmers have practically eliminated hand labor in unloading, but this should be considered as a credit to the farmer and not to the use of the field chopping equipment.

The pick-up or field baler, when used only for baling, is chiefly a mechanical means of bunching hay, a job that was eliminated by the other pieces of equipment. When the baler is equipped with a slide for loading on a towed wagon, the machine performs the elevating to the hauling vehicle. The fact that the hay is baled affects the methods of loading, unloading, and storing but it does not reduce the need for man labor to perform these operations.

This discussion of the possibilities for labor saving indicates that the field chopper and blower combination offers a means of performing more of the operations mechanically than any other type of equipment. The buck rake performs more mechanical handling of loose hay than the hay loader. The baler provides a compact and uniform bunch of hay to handle but does not eliminate much of the hand work of haying.

The analysis of the records obtained on the farms supports this theoretical analysis to a considerable degree. The hours of man labor required to move a ton of hay can be used to indicate the effectiveness of the equipment in reducing the labor on the actual farms. The average figures show that the farmers using buck rakes and

field choppers required the fewest hours of labor to move one ton of hay from the windrow to the mow. (Table I). The farmers using hay loaders and one-man balers required more hours, and the farmers using three-man balers were using the greatest amount of labor per ton of hay.

The average figures give an indication of the relationships between the groups of farms. However, the range evidenced within the groups may be of greater significance than the comparison of the group averages. There was greater variation among farmers

TABLE I. LABOR REQUIRED TO MOVE A TON OF HAY FROM WINDROW TO MOW IN CENTRAL MICHIGAN BY TYPE OF EQUIPMENT USED, 1946*

	Loose Hay		Chopped Hay	Baled Hay	
	Loader	Buck Rake	Field Chopper	1-Man Baler	3-Man Baler
	(Hours)	(Hours)	(Hours)	(Hours)	(Hours)
Low Farm	1.5	.6	.6	1.2	2.0
High Farm	2.5	3.4	1.9	2.5	2.8
Average	1.9	1.4	1.4	2.0	2.2

* For a true comparison the hauling time was adjusted to the average hauling distance of approximately 100 rods on all farms.

using the same type of equipment than between groups using different types of equipment.

The comparison of the effectiveness of the different types of equipment in terms of the rate of accomplishment gives another picture of the haying problem that should be considered. Some farmers are perhaps more interested in the amount of hay that can be handled in a given length of time than in the hours of labor required per ton of hay. This basis of comparison gives a somewhat different picture of the rank of the types of equipment. (Table II).

In general the larger pieces of equipment seem to have an advantage when compared on the basis of the average tons of hay that can be handled in an hour's time with the equipment and crew. However, the same wide variation is shown within the groups as was shown in the table giving the hours required per ton. This means that the possession of a given piece of machinery does not necessarily mean that the farmer will benefit in terms of labor saved or greater speed in haymaking. The way the equipment is used can make a greater difference than does the type of machine.

The comparison of the records on the basis of the equipment used

leads to the conclusion that no definite recommendations can be made as to the type of haying equipment that is most efficient for all farms. The choice of equipment depends upon the conditions on the individual farm. The conditions that must be considered in fitting the equipment to the needs of the farm include (1) the quantity of hay to be harvested, (2) the distance hay is hauled, (3) the available family and hired labor, (4) the alternate uses of the equipment, (5) the amount and location of the storage space, and (6) the size, shape, and topography of the fields.

TABLE II. TONS OF HAY MOVED FROM WINDROW TO MOW IN ONE HOUR IN CENTRAL MICHIGAN BY TYPE OF EQUIPMENT USED, 1946*

	Loose Hay		Chopped Hay	Baled Hay	
	Loader	Buck Rake	Field Chopper	1-Man Baler	3-Man Baler
	(Tons)	(Tons)	(Tons)	(Tons)	(Tons)
Low Farm	.8	.6	1.0	1.5	1.8
High Farm	2.3	4.1	6.2	2.5	3.0
Average	1.5	1.8	2.5	2.1	2.2

* For a true comparison the hauling time was adjusted to the average hauling distance of approximately 100 rods on all farms.

The study of the problems of haymaking leads further than the comparison of group averages. The farm records must be analyzed further to find the differences and the reasons for the differences among the farms in the same group. A comparison of the time required to perform each element in the haying operation indicates that there is also great variation in the time taken for each element. The data for any of the groups would illustrate this variation but only the data for the farms using hay loaders will be shown here, (Table III).

Study of the various elements that make up the haying operation points out that the two operations where the greatest improvement is possible are in loading and unloading. There is great variation in the other elements, but the time for one element such as preparing to load could be cut in half without greatly affecting the total time to move a ton of hay. Nevertheless, these elements should not be overlooked. There are four elements that involve travel and, on the farms using hay loaders, the average travel time made up 20 percent of the total time.

The analysis of the records within the various groups indicates

that the major factor affecting the efficiency of labor and the rate of accomplishment was the amount of hay carried in a load. Many farmers have adopted greater power and new equipment resources but have not changed their work habits to effectively utilize these new factors. The tractor is capable of hauling larger loads than a team of horses, but only a few farmers have changed their hauling vehicle or size of load to take advantage of this extra power in their haying work. Perhaps a part of the failure to use new equipment fully is due to inadequate information as to the capacities and proper methods of operation of the new equipment.

TABLE III. LABOR REQUIRED TO MOVE A TON OF HAY FROM WINDROW TO MOW ON SEVEN CENTRAL MICHIGAN FARMS USING HAY LOADERS, 1946

Elements of the Haying Operation	Average	Range	
		Low	High
	(Minutes)	(Minutes)	(Minutes)
Travel—barn to field entrance*	7.7	3.5	15.3
Travel in field	2.6	.8	3.7
Preparing to load	2.4	1.4	3.9
Loading	43.2	20.5	61.5
Unhooking and preparing to travel	1.8	.4	2.8
Travel out of field	3.4	2.5	4.6
Travel to barn*	9.4	5.3	14.5
Unloading and storing	44.2	30.3	63.0

* Distance adjusted to 100 rods on all farms.

The majority of the other factors causing differences among the individual farms falls into the category of organization and planning of the work. Here the capability of the individual farmer is evidenced. Although there are many things involved that can not be recorded or measured, some indication of the nature can be obtained. Planning the raking and loading so that a load can be completed near the field entrance makes some difference in the travel time. Maintaining the equipment in proper repair and adjustment affects the rate of operation as well as the loss of time from delays caused by breakdown and improper functioning. Organizing the work to take full advantage of the equipment and crew available is a major problem especially with the larger and more expensive pieces of equipment. A smooth working organization that keeps the men and equipment operating at a steady pace without idle time is an evidence of skill in the coordination of men and ma-

chines. A problem that faces many farmers is the choice of unloading method to fit the conditions found in the barn on the particular farm. As almost every farm presents a different problem, the ability of the operator in adapting the best method to the conditions may be considered as mechanical or as managerial ability.

Summary and Conclusions

The study of hay harvesting has pointed out several things that indicate the value and the problems of using the techniques of job analysis on the field work operations. These techniques point out the importance of the managerial ability of the individual perhaps even more than do other methods of farm management research. Moreover, job analysis appears to have greater possibilities in pointing out the factors that are associated with managerial ability and outlining methods in such a way that they can be shown and taught to others.

The results of the study of haymaking may be summarized as follows:

1. No one method is best for all farms.
2. There is greater variation among farmers using the same type of equipment than between groups using different equipment.
3. The choice of equipment should depend to a considerable extent on the conditions on the farm.
4. Farmers do not have adequate information on the proper operation of the newer types of equipment.
5. The managerial ability of the operator may have greater effect on the success or failure with a given machine than the capabilities of the machine.
6. Each farm presents a different problem, and the best method of improving the haying operations on a particular farm may be to study and improve the methods of using the present equipment.

B. R. BOOKHOUT

Michigan State College

COMMENTS ON "THE COST OF SUBSISTENCE" BY GEORGE J. STIGLER*

THE author of "The Cost of Subsistence" has planned a really minimum-cost diet¹—the "minimum cost of obtaining the amounts of calories, proteins, minerals, and vitamins" necessary

* A note published, this JOURNAL, May 1945.

for adequate human nutrition. The cost of this diet is far below that of the usually planned minimum-cost adequate diet. However, the author has neglected to consider certain important physiological, chemical, dietetic, geographical, seasonal, and cultural factors.

Nutritionists, in publishing minimum-cost diets for low-income families, often do not explain the basis on which such diets are planned. These principles are generally understood by dietitians, social workers, public health workers, and others who guide families in following these planned diets. Because of this fact the critical lay reader may feel that the nutritionist has been unnecessarily extravagant in her planning.

In planning nutritionally adequate diets at minimum cost a number of factors need to be considered in addition to obtaining the necessary amounts of the ten known nutrients for which we have tentative standard daily allowances. A nutritionally adequate diet—even a subsistence diet—calls for more than merely the necessary amounts of calories and protein and those few of the essential minerals and vitamins of which we know the approximate daily requirements. Some of these other factors considered in planning nutritionally adequate diets at minimum cost are listed and briefly explained below.

Physiological factors—In order to be really adequate a diet must not only contain a sufficient amount of all the necessary nutrients, but it must also be edible and digestible. Palatability is a matter of opinion and varies with cultures and customs, but the human digestive tract (over which one has but little control) has definite functional limitations. After living on an omnivorous diet for ages, man has become biologically adapted to this type of diet. A diet too restricted as to variety and too high in one or two foods may soon become nutritionally inadequate through psychological reactions of

¹ Food allowances per person per year, as given by Dr. Stigler, for August, 1939, are as follows:

<i>Commodity</i>	<i>Quantity</i>	<i>Cost</i>
Wheat flour	370 lb.	\$13.33
Evaporated milk	57 cans	3.84
Cabbage	111 lb.	4.11
Spinach	23 lb.	1.85
Dried navy beans	285 lb.	16.80
		<hr/>
		\$39.93

The present comments are based on this diet only, but would apply also, with few exceptions, to Dr. Stigler's diet as planned for August, 1944.

the consumer or through resulting digestive difficulties. Some foods may be tolerated and be nutritious if consumed in small amounts but may be toxic or otherwise harmful if consumed in large quantities day after day. Dry beans, at least for many individuals, would fall in this category. If a diet is culturally unacceptable, unpalatable, inedible, physiologically irritating, or too bulky it cannot (or will not) all be eaten. As a result, not only the intake of calories but of other nutrients as well will be below the desired level.

Of the three sources of energy in food, starch and protein yield only four calories per gram, whereas fat, a much more concentrated and less bulky source of energy, yields nine calories per gram. The diet planned by the author of this article contains only fifteen grams of fat per day, which supplies only four and one-half percent of the day's energy needs. This makes it necessary to eat a large amount of starch in order to supply the remaining ninety-five percent of the day's calorie requirements—an amount which may be beyond the capacity of many even so-called normal digestive tracts. In general, the diets of people in the United States contain about fifty to one hundred grams of fat per day, which furnishes fifteen to thirty percent of man's energy needs.

Over ninety percent of the vitamin A in this diet is supplied by leafy vegetables, namely, cabbage and spinach. It is known that the pro-vitamin A (carotenes and other plant pigments, which are transformed into vitamin A in the body) in green leafy vegetables is not completely utilized and transformed into the vitamin by the body—in fact, the utilization averages about fifty percent. In a diet that is barely adequate in total vitamin A value, and in which less than ten percent of this vitamin is of animal origin (from milk, butter, eggs, liver, fish liver oil—foods rich in true vitamin A, the readily utilized form), the total available vitamin A in the diet would be inadequate to meet the body's needs.

Chemical factors—In addition to meeting the standard daily allowance of eighty grams of protein per day it is generally conceded that a diet, in order to be adequate, must contain some animal protein, unless the protein in the diet comes from sufficiently varied plant sources to assure an adequate intake of all the essential amino acids. In Dr. Stigler's proposed diet only six percent of the body's protein needs are met by protein of animal origin. Since the plant foods in the diet are quite restricted as to variety, there may well be some doubt as to the biological adequacy of the protein in the

diet, even though the total protein is almost double the standard allowance.

Twelve or more minerals and at least this number of vitamins are known to be essential for good human nutrition. In planning diets to meet the estimated needs of the body for the eight minerals and vitamins for which standard daily allowances are listed by the National Research Council, foods are selected from a variety of sources, in the belief that this is the best way in which to meet the needs of the body for the additional sixteen or more minerals and vitamins for which we do not have "standard allowances." It may be questioned whether Dr. Stigler's proposed diet, with its very limited number of food items, would meet the body's needs for these other nutrients.

Whole wheat is rich in the numerous (eight or more) fractions of the vitamin B complex, and in vitamin E, whereas fifty to ninety percent of each one of these vitamins is lost in the manufacture of white flour. In a low-cost diet, which is inevitably high in wheat flour and other cereal products and low in the "protective foods" (fruits, vegetables, milk, eggs, and meat), it is important that half or more of the cereal products be whole grain, in order that the body's needs for these vitamins be met. In the proposed diet wheat flour supplies fifty-four percent of the calories and all the flour is the highly milled (white) form, as indicated by the cost. On calculating the nutritive value of this diet it was found to be thirty-seven percent low in riboflavin and seventeen percent low in niacin. It is very likely that some of the other members of the B complex are present in inadequate amounts. In calculating the nutritive value of the diet composition data for unenriched white flour were used. Even enriched white flour would probably leave the diet deficient in the B vitamins other than thiamine, riboflavin, and niacin, the three vitamins added to white flour when it is enriched. Cooking would make the diet still more inadequate, but most of these foods could not be consumed or digested in the raw state.

Dietetic factors—In order to make the large amount of flour in the diet edible and digestible some leavening agent would be needed. Soda and baking powder, being alkaline, are known to destroy twenty percent or more of the thiamine in flour when used in baking quick breads. Yeast does not have this objectionable feature; however, its frequent use would add several dollars a year to the cost of the diet.

In planning diets (even minimum cost diets) a small margin of safety is allowed to cover a slight and inevitable loss in storing, preparing, and serving food. Five or ten percent is usually added to the minimum amount required to take care of this loss. No such allowance has been made in this case.

In cooking foods, such factors as cost of fuel, cooking equipment, and time must be considered. In this case the cost of fuel needed in cooking would add considerably to the total cost of the diet.

In cooking food there is always some loss of vitamins, especially of ascorbic acid and thiamine. Approximately ten percent of thiamine is lost in baking bread; there may be as much as a fifty percent loss in thiamine in preparation of foods that need long cooking, such as dried beans. These estimated losses in cooking would make this diet about twenty-five percent below the standard allowance for thiamine. Ascorbic acid is even more readily lost in cooking and during storage. In order that this diet be adequate in ascorbic acid, all of the cabbage and the spinach would have to be freshly harvested and consumed raw, which, of course, would be impossible.

Geographical and seasonal factors—In planning nutritionally adequate diets at minimum cost, geographical location and seasons must be considered. Fresh cabbage and spinach could not be obtained at low cost throughout the year, except possibly in the extreme southern part of the United States. In the northern part of the country two-thirds to three-fourths of the year's supply of spinach and cabbage in this diet would be canned, winter stored or krauted and would be very low in ascorbic acid content. The total year's supply of these vegetables could hardly be consumed in the fresh state during the relatively short period of the year when they could be obtained at low cost in this form. Even though this were possible, it would not meet the individual's year-round needs for ascorbic acid, since this vitamin is not stored to any great extent in the body, and any intake beyond immediate physiological needs is largely excreted within a few days.

Availability of markets and possible price fluctuations in some areas would also need to be considered.

Cultural factors—National, racial, religious, and other cultural factors need to be taken into consideration in planning a nutritionally adequate minimum-cost diet for any group of people. Recent family history, economic level, and food habits need to be considered. The purpose in planning minimum-cost diets is not only

to determine the lowest cost for which the required amounts of ten given nutrients can be supplied to people, but to plan a diet which will actually meet the total nutritive needs of a given group. There are no doubt millions of people in Europe and in the Orient who would benefit nutritionally if they could secure Dr. Stigler's diet. It is much higher in nutritive value than many emergency famine diets. However, an "emergency" diet is admittedly not a nutritionally adequate diet and is intended only for use during short emergency periods. A "nutritionally adequate" diet is one that can be consumed for indefinite periods without resulting in discomfort or malnutrition.

In order to make Dr. Stigler's diet adequate from every standpoint at least the following changes would need to be made: Have half the flour whole grain, increase the amount of milk (especially in families with children), include a greater variety and greater total amount of vegetables, include some tomatoes and other fruits, reduce the quantity of navy beans, include some low-cost cuts of meat, add fortified oleomargarine, increase the total food allowance about five percent to cover inevitable waste, and add a small sum to the total cost to provide for such items as beverages, condiments, sweets, which help to make a restricted, though nutritionally adequate, diet tolerable.

MARTHA POTGIETER

University of Connecticut

REVIEWS

The Wallaces of Iowa, Russell Lord, Boston: Houghton Mifflin Company, 1947. Pp. 615.

The readers of this journal no doubt have already read reviews enough of this book as a document on the Wallaces. The comments which follow will mainly be upon it as a document on American agricultural policy and its evolution. As such, it will have to be adjudged like that of any other contemporary participant or observer. The compilers of such documents need not limit their memoirs and memoranda to the parts of the record which they know most about from personal experience, but commonly they largely do. In this respect, *The Wallaces of Iowa* is much better than the ordinary memoirs because Russell Lord took the trouble to consult a number of other memoirs, like those of the first Henry Wallace, of George Peek, and of Henry C. Taylor (unpublished), and in some measure to have his account checked over by participants in the action. As an historical document, however, it would be much more useful if the author could have done more of this. Doing nothing more than to exploit the contemporary studies made by the Brookings Institution, summarized in *Three Years of the AAA*, by E. G. Nourse, J. S. Davis, and J. D. Black, would have helped considerably. Perhaps this point can be clinched simply by stopping to think what else Chester Davis would put in his memoirs for the years when he was associated with Henry Wallace, or Howard Tolley, or J. B. Hutson.

The other attribute of personal memoirs of this sort, namely, that they unavoidably reflect the attitude and interests of the writer, is even more manifest in this document. Russell Lord is clearly no trained historian presenting all of the evidence and letting these reveal his subject. He is presenting to his readers his Henry A. Wallace and "Young Henry's" two forebears. The first attribute of the document which we are reviewing caused some significant parts of the record to be omitted because the author had no contact with them and did not discover them in his source materials. The second attribute caused him to omit even more revealing parts of the record because they did not fit into his conception of his three subjects. Much of the time, this reviewer does know which of the two was the cause of the omission.

Given the foregoing as warning, any one interested in the development of American agricultural policy in the period from 1897 when Uncle Henry Wallace's friend James Wilson became Secretary of Agriculture, until Henry A. Wallace resigned to run for Vice President in 1940, can safely use this book as one of his major sources. For some parts of the story, this book will be his most informative or at least most revealing source. Under this latter head belong his reporting of Henry C. Wallace's thinking on agricultural matters when he came to Washington in 1921, and the steps by which the McNary-Haugen movement developed and the split widened between him and the administration; also the process by which he and his son Henry, then wrestling hard with the causes of the agricultural depression in the pages of *Wallace's Farmer*, came to espouse a program of reducing total agricultural output to bring it in line with declining exports; and of how Henry A. Wallace conceived and developed his idea of the "ever normal granary."

His report of the purging out of the AAA in February 1935 of Jerome Frank, Lee Pressman and other Tugwellians puts down in writing for the first time some of the more significant details of it. More real information as to its antecedents would have been highly illuminating. Mention is made of the assignment of Tugwell to represent the United States at the 1934 annual assembly of the International Institute of Agriculture in Rome. It would have been well to have explained how he happened to get this assignment, and Paul Appleby along with him. Even the particular issue which led up to the final incident of the purge—the interpretation of the rule about landlords and the croppers and tenants in the South—needs much clearer statement.

The failure to provide a clear statement in this case illustrates perhaps the major fault in this document: namely, it often presents only in vague, general, and even confused terms some major development in agricultural program and policy. For example, so vague is the treatment of the evolution of the Farm Security Administration that this reviewer is not certain that Russell Lord ever learned the difference between the rehabilitation loan and the tenant purchase programs, and the relation of these to the program of resettlement projects. Again, he makes it clear that the Secretary Wallace came in time to look upon the AAA program as one not for getting less total agricultural output, but for getting agricultural production shifted into the right lines—of "balanced abun-

dance" within agriculture; but the details and timing of the transition are largely missing.

The most glaring omissions are the complete failure to deal with the bringing of the Farm Credit Administration into the Department of Agriculture, and the almost complete failure to deal with the unfortunate attempt to make the Bureau of Agricultural Economics the policy-making arm of the Department, and the accompanying system of interbureau coordinating committees, county-planning committees and the like.

Perhaps as befitting a man who is writing about former associates who are still living, Mr. Lord deals gently with the mistakes and deficiencies of those who were associated with the second Secretary Wallace. Someday someone needs to come out boldly and say what was wrong with Peek, Brand, Tugwell, Frank, Pressman, Jackson, and Baldwin that made them clear misfits in the AAA program, while recognizing clearly the definite contributions that Tugwell and some others made to the important FSA developments.

There is some misrepresentation in the book. As good an example of this as any is Secretary David Houston's contribution to developing the economic work of the Department of Agriculture, and the whole Houston-Spillman episode; likewise the role played by Spillman in the Department of Agriculture after he was called back to it in 1921.

There is also confusion and some error in the handling of the part of the program that this reviewer was associated with a little. The "domestic allotment plan" that President Roosevelt presented in his Topeka address in 1932 was based on the Hope-Norbeck bills introduced in the closing months of the preceding Congress. These had been drafted largely by M. L. Wilson, who was lobbying for the domestic allotment program in Congress that spring, with help from Mordecai Ezekiel and this reviewer, both then associated with the Federal Farm Board. Mr. Tugwell learned about these proposals at a policy conference called at the University of Chicago in June. (Wilson was on the program to report upon his progress with Congress.) Tugwell asked Wilson to come to New York and present the plan to Roosevelt and his brain trusters. The domestic allotment plan put in the Hope-Norbeck bills was based on a presentation of it in Chapter X in this reviewer's *Agricultural Reform in the United States*, published in 1929; but contained two important departures. One was the use of processing taxes. This change was

made because Stanley Reed, then Solicitor of the Federal Farm Board, had opined that the domestic allotment plan would be unconstitutional in its then form, and Judge Redpath of the U. S. Chamber of Commerce had, at Henry I. Harriman's request, revamped it to make use of the taxing power. This had been decided upon at a conference called by Harriman in Chicago to consider Wilson's proposal. Harriman had learned of the proposal from Wilson, who was then a member of the Committee on Agriculture of the U. S. Chamber of Commerce.

The proposal outlined in Chapter X of *Agricultural Reform* was not original with the author of that book, but was instead an attempt to present in workable form the ideas of none other than Dr. Beardsly Ruml, who had worked them out as something to take the place of the McNary-Haugen proposals which he did not like. Probably he got his original suggestion from the German import certificate scheme. At least, he always cited this as a precedent. Dr. Ruml did not know at this time about Spillman's *Balancing the Farm Output*. He was at this time director of the Laura Spellman Rockefeller Fund. Dr. Edmund Day, then of the Rockefeller Foundation, assigned Dr. Ruml \$5,000 to finance an exploration of his proposals. This reviewer used about two-thirds of this \$5,000 in assembling the materials in *Agricultural Reform*. He of course knew of Spillman's Limited Debenture Plan, compared it with the Ruml proposals, and no doubt obtained some suggestions from it. Also, no doubt, did Wilson and Ezekiel when they were working on the drafts of the Hope-Norbeck bills. Dr. Spillman himself considered the Ruml Plan with its "transferable rights" as definitely superior to his Limited Debenture Plan.

One of those working with this reviewer on Ruml's proposals definitely favored the use of processing taxes. Dr. Ruml was strongly opposed to them. He did not want farmers getting checks directly from Uncle Sam. Perhaps it needs to be explained that Dr. Ruml was not seeking any publicity in those years, and would not allow his name to be used in connection with his plan. The reviewer had to present it to Congress in the spring of 1929 as "author unstated."

The other major change in the Hope-Norbeck bills from the Ruml Plan was the incorporation in them of the parity price or equality-of-exchange idea of the McNary-Haugen bills. Under the

Ruml Plan the prevailing level of tariff duties would have determined the price premiums.

It later became Stanley Reed's task to defend the AAA act in the Hoosac Mills case. He used some of the same arguments as he had used in commenting on the Ruml Plan of Chapter X. But the majority opinion of the Supreme Court ran in the opposite direction.

Perhaps it may be of some interest that two of the central ideas of the agricultural legislation of 1933 to 1937—domestic allotment and "adjustment"—from which came the middle term of the AAA—were central ideas in *Agricultural Reform*, and of the educational program that M. L. Wilson was so vigorously promoting in the years from 1928 to 1933. Although Lord's book deals adequately with M. L. Wilson on the whole, it does not make emphatic enough his key position in the evolution of the Farm Act of 1933.

The most amusing error in *The Wallaces of Iowa* is the author's taking the decline of 250,000 farms between 1925 and 1930 reported in the census of 1930, as if it had actually happened, instead of being almost wholly a census phenomenon, and the even more census-manipulated increase of 500,000 between 1930 and 1935, and using them as evidence in support of certain Tugwellian hypotheses about American agriculture.

Although this review does not concern itself with Lord's book as a document on the Wallaces, it is fitting to conclude it with a few remarks along this line. The reviewer believes that the author has presented an excellent analysis of Henry C. and Henry A. Wallace and their ideas and motivations. This was the author's major task and he has done this well. The principal deficiencies on this score have to do with Henry A. Wallace as an administrator of the Department of Agriculture. Beyond all question, Henry A. was one of the greatest "leaders" any department of our federal government has ever had. But he was not so good a "governor" of it. And it surely needed governing in his years. Henry A. Wallace was a poor disciplinarian, and as such let things drift and get out of hand, and then under very great pain at the very last moment seized an axe and went to it. Getting Frank and some of his group out of the Department of Agriculture was necessary, but the purge as such could have been avoided by timely action. Perhaps there was a certain dramatic justice in President Roosevelt's resorting to purge

methods when he abolished the Board of Economic Warfare in 1943.

JOHN D. BLACK

*Harvard University
Cambridge, Mass.*

Prices of Dairy Products And Other Livestock Products, Frank A. Pearson and Edmund E. Vial, Cornell University Press, Ithaca, New York, 1946. Pp. 154.

This book presents a statistical analysis of factors affecting the prices of some dairy and poultry products, meats, and fats. The analysis covers the period 1920-41 and is made mostly at the whole-sale level. In addition the book contains a chapter on "Demand and Supply Curves Versus Supply-price and Diversion Curves."

The abbreviated title, "Prices of Dairy Products," leads one to expect a more extensive treatment of dairy prices than is provided. Only about one-third of the book is devoted primarily to dairy products. The analysis is limited largely to the relationship of current production, storage stocks and the general price level to the price of each product, although for some items consumption also comes in for brief discussion.

The analysis of dairy prices is limited to butter, cheddar cheese, evaporated milk, ice cream, dry nonfat milk solids and casein. No analysis is made of fluid milk and cream prices although these two products in cities and villages absorb about 40 percent of the total commercial supply of milk. Exclusion of these two items is explained by stating that "prices for the various classes of milk (in the New York milk shed) are based upon prices of butter, cheese, nonfat dry milk solids (dry skim milk) and prices paid by condenseries for milk." The job of translating these product prices into fluid milk and cream prices is left to the reader. The analysis is extended to prices of poultry products, meats and fats (including cottonseed oil) "to determine whether the relationships were similar to those for dairy products."

The authors make a valiant attempt at making their book both technically accurate and popular. It is well organized and readable. The method of analysis is clearly set forth as are also the various sources of data. It is doubtful if the trade is especially interested in the technical aspects of correlation analysis or in alleged differences among technical workers over the best statistical devices to use and

yet it appears that the book is designed primarily for those engaged in handling dairy products.

The book contains a large amount of data and discussion which are useful to anyone wishing background information on prices of the particular products covered in the study. The reviewer wishes that the authors had penetrated deeper into the factors affecting dairy prices including fluid milk and cream rather than to extend their analysis to other livestock products.

Conclusions such as these: "The price level and supply explained 51 to 87 percent of the variation in monthly prices of butter," and "the price of butter, the supply of cheese and the price level explained 55 to 91 percent of the variation in cheese prices from August to February" obviously leave a considerable part of the price of these particular products still unexplained.

The price level as measured by the index of 30 basic commodities is found to be the most important factor, 37 to 92 percent, in explaining the monthly variations in the price of butter, and the price of butter in turn was the most important factor explaining the price of cheese. However, the price level taken alone appeared to have only a negligible relationship to the price of cheese. For evaporated milk, casein and cheese the price level is in each case weighted twice—once as a direct factor and once as an indirect factor through the price of butter or dry nonfat solids.

Butter consumption is shown to decrease only 0.2 percent for each 1.0 percent increase in the retail price. This would indicate that the demand for butter is much more inelastic than is generally believed. Perhaps some caution should be taken in applying average relationship for the period 1920-41 to present conditions. There have been many changes in quality, quantity and acceptability of several foods. This study is much more useful in showing past price relationships than in providing a basis for predicting future prices.

R. K. FROKER

University of Wisconsin

Drought, Its Causes and Effects. Ivan Ray Tannehill. Princeton, N. Y.: Princeton University Press. 264 pp. \$3.00.

As a preface to this valuable discourse on droughts, Mr. Tannehill outlines in some detail the social and economic impact of droughts, as experienced during the history of this and other countries. He then combines a large number of known meteorological and

climatological relationships with an amazing array of data into a theory of drought which, within the context of available information, accounts for their occurrence in the past and which will undoubtedly be tested with interest in the future.

Mr. Tannehill rejects the "classical" view, that droughts are the result of random combinations of rain deficient days, for the "objective" approach which adds variations in solar radiation (*inter alia*) as a probable causal element. To the classicals, climate is simply average weather, whereas "the objective view holds that the climate itself changes through the years and attributes climatic changes to variations of solar radiation."

The author sees the oceans, particularly the Pacific, as the media through which persistent controls of the rainfall are maintained in the United States. The Pacific probably exercises an influence second only to that of the sun on the weather of this country. Increasing solar heat accelerates atmospheric circulation; this tends to alter the distribution of ocean temperatures, which affects the location and intensity of the North Pacific high, and shifts the continental inflow of Pacific air.

When pressure east of the Rocky Mountains is relatively high in the north and relatively low in the south, there tends to be more than normal rainfall in the United States. Simultaneously the pressure on the Pacific coast, and presumably over the eastern North Pacific ocean, is relatively low. When the converse situation prevails, rainfall tends to be deficient in this country. Due to prevailing westerly circulation air must cross the Rockies into eastern United States; if pressure status inhibits this inflow to the north it must accumulate and be forced over in the south. When this occurs profound change in the distribution of rainfall is associated and droughts become serious and widespread.

The author feels that a great deal of work is yet to be done on the problem of droughts, but he is optimistic that improvement in prediction is assured as information and analyses accumulate. Control of the climate is not considered outside the realm of possibility, but in that event effective regulatory measures would be needed to avoid "exportation" of undesirable weather.

Sophistication in meteorology is not prerequisite to comprehension of this discourse, but some familiarity with this subject facilitates reading. Clarity of expression and excellent illustrative materials compensate largely for a reader's possible unfamiliarity with tech-

nical content. The quality of the theory will be determined by further observation and analysis. The reviewer feels, however, that at least two facets of this problem merit further consideration than accorded them in this book. Attribution of ultimate drought causation to variations of solar activity involves the complex problems of "reaction time" between solar change and climatic response and, in addition, the prediction of solar dynamics as a prerequisite to effective longer range weather forecasting.

The interactions between climate and agricultural economics are ubiquitous. The author renders an important service by stating many of these. The cost incidence of drought is "oversimplified," but Mr. Tannehill does not overstate cost magnitude. Price analysts and marketing economists will be interested in forecasting refinements as prerequisite to production estimates. Policy students may reconsider some of their analyses in harmony with evidence of non-random world weather interrelationships as interpreted by Mr. Tannehill. Relevance of this topic to production and land economics is, of course, obvious. For all, "Drought, Its Causes and Effects" should be an interesting reading experience.

ARNOLD BREKKE

University of Minnesota

Elements of Soil Conservation. H. H. Bennett. New York: McGraw-Hill Company, 1947. Pp. x, 406. \$3.20.

Mr. H. H. Bennett, Chief of the Soil Conservation Service, has evangelized soil conservation for another group of people. This volume is designed for use as a text in introductory courses,—high school and college,—and as a source book for adult discussion groups,—“Friends of the Land,” businessmen’s associations, etc.

The material presented in this volume includes a large number of arresting facts taken from Mr. Bennett’s long experience and from the records of the Soil Conservation Service, U.S.D.A. Pictures, maps, and charts are used freely. Interspersed throughout each chapter is a considerable amount of the author’s philosophy. And at times his enthusiasm tends to imply greater meaning to his facts than is warranted. This volume is essentially a reprint of the first two-thirds of his earlier book (*Soil Conservation*, McGraw-Hill 1939). The first seven chapters deal with soil erosion,—extent, effects, rates, and causes, The remainder of the book presents what Mr. Bennett considers the elements of soil conservation,—a national

program for soil conservation and the agronomic and engineering devices used in preventing soil loss. This volume includes chapters on farm planning, drainage, and irrigation (9, 20, 21) not contained in the earlier volume. Mechanically the book is well designed as a text with a list of side headings at the beginning of each chapter, questions and additional references at the end of each chapter, and a list of visual aids which are available as supplements (page 277).

We must recognize that Mr. Bennett's objective is to create in all people an awareness of the need for soil conservation. This he has done well. To him should go considerable credit for the fact that farmers are more conscious of soil conservation now than they were ten years ago and for the fact that our legislators have seen fit to continue sizeable appropriations for soil conservation programs. The real questions in soil conservation, however, are (1) how much can individuals and society afford to invest to prevent soil loss and (2) how can individuals and society organize to conserve and develop land resources.

Mr. Bennett views these questions in physical terms, and hence his analysis of them should not be expected to be entirely satisfactory to the agricultural economist. Briefly his steps are as follows: The estimated cost of soil loss is about \$3,844,000,000 annually (page 18). It pays to save all the soil (ideal soil conservation) because the cost of soil conservation is less than the cost of soil loss. Hence the farmer will practice soil conservation once he becomes acquainted with the soil losses on his farm and the methods required to prevent such losses. Mr. Bennett recognizes that a farmer may be limited by his "pocketbook" in carrying out a program which would prevent soil loss. But he goes on to say, "The closer the farmer can approach it and still make a good living the more stable and productive his land will be and the surer his income, over the long run." (page 160). Government's responsibility is to acquaint the farmer with the "facts" and help him develop a soil conservation plan for his farm.

There are several critical points in this argument. The generalization that it pays to conserve all soil is not warranted. It may pay to improve and develop some land beyond the point of preventing soil loss (chapters on Irrigation and Drainage). The individual and social costs necessary to prevent soil loss on some land may be so great in relation to benefits that investments in soil conservation are not justified. The farmer can be expected to practice soil con-

servation only in cases where his investment yields an additional return to him. But many of the benefits of soil conservation accrue to society and not the farmer. Also the market does not always reward the farmer who makes the investment in soil conservation with the additional returns. Such factors as tenure status, probable continuation of operating control, and life expectancy affect the division of the benefits and hence the willingness of the farmer to invest in soil conservation.

As a result of Mr. Bennett's assumption that individual farmers with technical assistance could afford to conserve and develop the soil adequately, he limits his program for soil conservation almost entirely to an educational program (chapter 8 and 9). To be sure, Soil Conservation Districts seem to be given a prominent place, but not for the purpose of local regulation of land use which is the main function of the district device. Rather he considers the formation of a district an expression of local interest in the problem which is necessary before the Soil Conservation Service will assign a "technician" to the area. Also he considers the district a device similar to a cooperative which can accept public funds for soil conservation and can lease and manage land. However, making farm plans by technicians and farmers appear to be the major part of Mr. Bennett's program for soil conservation (chapter 9). The responsibility of government is to furnish technicians which has the effect of limiting Mr. Bennett's program to education.

RAYMOND J. PENN

University of Wisconsin

Price-Quantity Interactions in Business Cycles. Frederick C. Mills.

New York: National Bureau of Economic Research Inc. Twenty-fifth Anniversary Series No. 2., 1946. xii, 140 Pp. \$1.50.

This is an interesting study of interaction of physical volume, unit price and monetary values in the American economy, using a sample of 64 prices. The period covered is 1858-1938. Only about half of the commodities however, go back as far as 1914. The following agricultural commodities are included in the sample: beef, bread, butter, cattle, coffee, corn, raw cotton, cotton yarn, crude and refined cotton seed oil, eggs, flour, hides, hogs, lard, leather, linseed oil, meat, condensed, evaporated and raw milk, pork, potatoes, rubber, sheep, raw silk, silk yarn, sugar, raw wool and worsted yarn.

The behavior of the 64 commodities is analyzed with the help of the method of reference cycles recently described in the publication of Arthur F. Burns and Wesley C. Mitchell (*Measuring Business Cycles*, New York, 1946.)

A number of novel descriptive measures of the cyclical behavior are developed. The average amplitude is the sum of the average expansion and contraction in the cycle. The joint cyclical variability is the sum of squares of the amplitudes of prices and quantities in the 9 stages of the business cycle. This measure has a certain resemblance to Gini's mean difference (see e.g. M. G. Kendall: *Advanced Theory of Statistics*, vol. 1, London 1945, pp. 43 ff.)

A price and a quantity component are distinguished in the joint cyclical variability. Cycle elasticity is the average response of quantity to price and other economic forces in the cycle. Flexibility is the average response of price to quantity and other economic forces in the cycle. The concepts are here used in a sense quite different from the usual one in economic theory.

The results achieved with the help of these measurements show a great diversity of various commodities and commodity groups. On the whole it appears that prices have a stronger and more consistent cyclical pattern than quantities. Elasticity and flexibility are on the average approximately equal to one. Durable goods, capital equipment and non-farm products have high joint cyclical variability, consumer's goods, foods, farm products and non-durables a low one.

Price variability is high relative to variability of quantities in markets close to the initial stage of extraction and the final stage of consumption. Foods show a particularly high flexibility. Prices are flexible and quantities are inelastic for farm products and for consumption goods in general.

The results are on the whole not surprising but confirm the expectations of most business cycle theorists about the cyclical behavior of prices and quantities.

In terms of the methods used and developed in the National Bureau this is a good study which is suggestive even to economists and statisticians who do not entirely agree with them. But the reviewer believes that these methods themselves are not adequate for an analysis or even an intelligent description of price and quantity behavior in the business cycle. A much more thorough theoretical basis is necessary than the one (tacitly) implied by the

various classifications of commodities into groups. More refined statistical techniques are also now available.

GERHARD TINTNER

Iowa State College

Economic Research and the Development of Economic Science and Public Policy. New York: National Bureau of Economic Research. 1946. pp. 198. \$1.00.

These are twelve addresses commemorating the twenty-fifth anniversary of the founding of the National Bureau of Economic Research. The twelve speakers were invited to "take counsel on the tantalizing question how our knowledge of economic processes can best be improved, extended and used in the interests of society." The twelve papers are diverse in style and content and they follow no clearly defined line of development. However, there is general agreement among the speakers in respect to the kinds of problems to which economists should address themselves, the methods of analysis which should be used and the kind of empirically adduced and verified theoretical knowledge they should seek. Until recently, most economists held themselves apart from the functioning economy. Theory of the logico-arithmetic type was, with a few exceptions, almost entirely unrelated to the empirical inquiry. In the past quarter-century, covering the life of the National Bureau, economics has begun to become the science of the functioning economy. Theory has been re-oriented, and both the collection of data and the use of mathematical statistics have been continuously improved. Government has begun to take on responsibility for full employment and economic stability.

There is increasing recognition that economic analysis is significant insofar as it is pragmatically oriented. Great advance has been made in the solution of practical problems—particularly during the war years in which the economist was required to provide, quickly and accurately, quantitative forecasts as a basis for policy. The economist will probably neither want nor be permitted to withdraw from his function in providing data for policy making. There are wide ranges of important questions yet unanswered and for which no satisfactory techniques for solution are available. Most of the papers deal with the kinds of questions which should be engaged, the means by which uncertainty among economist may be diminished and a body of empirically verified generalizations of the natu-

ral science type may be built up. It is agreed that concepts should be qualified, and that each problem should be regarded as an integral phase of a broad inquiry into how the economy functions and how goals may be achieved. This does not mean that all economists should deal only with the solution of immediately practical problems to the exclusion of the advance of general knowledge. It does mean, however, that economists should deal with questions which can be answered and the answers to which are of some significance to people.

The size of national output, the stability of employment, the role of government and the interrelationships of national economies are set out as examples of such questions.

G. L. MEHREN

University of California

A Century of Farming in Iowa 1846-1946. Iowa State College Staff Members, Ames, Iowa: Iowa State College Press, 1946, Pp. xiii, 353, index.

This book of 353 pages and 27 chapters includes contributions from 40 authors, all members of the staff of the Iowa State College. In this book is reported the development of modern technical agriculture in the state of Iowa. Most of the chapters are given an historical setting and the evolution of technology and development is carried through to the present time. The wide variety of subject matter treated and the diversity among the authors have resulted in a lack of continuity. The small amount of space assigned to each subject has made it necessary to give very summary treatment to most subjects. For example, Chapter One, "Struggle for Land Ownership," by W. G. Murray, tells the story of land ownership, land tenure, and the rise of mortgage debt in Iowa from the time of early settlement. This Chapter is very well done but of necessity only a superficial treatment can be given of this important subject in 17 pages.

For all practical purposes the book constitutes a report of the Agricultural College and the Experiment Station for the one-hundred years, 1846-1946. The development of scientific agriculture and the part played by the College in this development are the central theme of the book. Comparatively little space is given to the factors contributing to the evolution of Iowa farming other than those in which the College plays a controlling part. The book

is written in popular style at about the level of a good extension bulletin. Most of the material presented is that which is no doubt included in the present day extension program of the College. This material, however, is presented in a comprehensive manner in which each subject is related to the work of other departments. It is also given in an historical setting and from a philosophical point of view which adds greatly to its general cultural value. It constitutes a useful summary of the contribution of the College over the years and this book might well serve as a model for books of a similar nature which might be published for other important agricultural states.

E. C. YOUNG

Purdue University

PUBLICATIONS RECEIVED

- Black, J. D., Clawson, M., Sayre, C. R. and Wilcox, W. W. *Farm Management*, New York: The Macmillan Co., 1947. Pp. 1055. \$5.50.
- Harding, T. Swann, *Two Blades of Grass: A History of Scientific Developments in the U. S. Department of Agriculture*. Norman, Oklahoma: University of Oklahoma Press, 1947. Pp. xv, 332.
- Lorie, James H., *Causes of Annual Fluctuations in the Production of Livestock and Livestock Products*, Chicago: University of Chicago Press, 1947. Pp. 105. \$1.50.
- Malm, James C., *Dust Storms, 1850-1900*, Lawrence, Kansas: Kansas Historical Quarterly, 1946. Pp. 71.
- Wilcox, Walter W., *The Farmer in the Second World War*, Ames Iowa: The Iowa State College Press, 1947. Pp. xii, 410. \$4.00

NEWS NOTES

Edward Allen of Iowa State College died late in July, 1947.

A. T. Anderson has been appointed an extension specialist in Farm Management Extension at the University of Illinois with the rank of assistant professor. During the past year Mr. Anderson has been heading a project on community development in which various divisions of the University cooperated with the Bloomington, Illinois Pantagraph in a community development program in the circulation area of this paper.

W. J. Anderson, formerly assistant agricultural economist with the Economics Division, Canadian Department of Agriculture at Vancouver, who has been carrying on graduate work in Agricultural Economics at the University of Chicago during the past year, has been appointed associate professor of agricultural economics at the University of British Columbia.

Ralph Battles, Assistant chief of the Division of Economic and Credit Research, Farm Credit Administration, Washington, D. C., was in Japan during May and June for the War Department. His personal assignment was to survey existing agricultural credit facilities and make recommendations regarding reorganization of the Central Cooperative Bank for Agriculture and Forestry and establishment of an adequate credit system.

Walter Bauer, Principal Agricultural Economist of the Economic and Credit Research Division, Farm Credit Administration, Washington, D. C. was a member of a War Department mission to Germany during April, May and June. Its assignment was to assist with rural organization matters and in making a survey of ways and means of relating the economic problems of the German farmer and his group activities to our democratic way of thinking.

R. S. Beck recently resigned as extension economist in Vermont to accept a similar position in the state of Washington.

C. A. Becker resigned his position in Farm Management Extension at Michigan State College, effective May 1, and accepted a position in Poultry Marketing at Pennsylvania State College.

Karl Brandt, Economist and Professor of Agricultural Economics in the Food Research Institute of Stanford University returned at the end of May from a visit of two months in Western Europe. He attended an international conference of social scientists at Mont Pelerin, Switzerland, directed by Professor F. A. Hayek of the London School of Economics, and devoted to a discussion of the philosophy of freedom. In Geneva, Zurich, Paris, and Brussels Dr. Brandt discussed the economic situation in Western Europe with food and agriculture officials, and in Germany conferred with agricultural economists with reference to a volume dealing with the German management of food and agriculture in the Institute's International History of Food and Agriculture in World War II.

R. G. Bressler, University of Connecticut, Associate Professor of Agricultural Economics will attend the meeting of the International Conference of Agricultural Economists at Totnes, South Devon, England. While abroad, Dr. Bressler plans to spend some time studying some of the English marketing systems as background for his study of marketing research for the Social Science Research Council.

W. D. Buddemeier, formerly fieldman for the Blackhawk Farm Bureau Farm Management Service Association, has been appointed an assistant professor in Agricultural Economics, Farm Management Research, University of Illinois.

Gordon L. Burton and David L. MacFarlane have joined the staff of McGill University as Professors of Agricultural Economics in the faculty of agriculture at Macdonald College. Dr. Burton was formerly Assistant Professor of Farm Management at the University of Saskatchewan, while Dr. MacFarlane was employed in the Food Division of UNRRA for the past five years.

M. P. Catherwood was appointed Dean of the School of Industrial and Labor Relations at Cornell University, effective July 1, 1947. He succeeds Irving M. Ives, who resigned after his election to the U. S. Senate last fall. Dean Catherwood did his graduate work in Agricultural Economics. He was Professor of Public Administration in the Agricultural Economics Department at Cornell until 1939 when he was granted a leave of absence to help establish a new Division of Commerce in Albany. Since 1941 he has been Commissioner of the New York State Department of Commerce.

M. C. Conner who was on leave of absence to do graduate study at Cornell University during 1946-47 has returned to V. P. I. to continue his work in Marketing Research.

R. B. Corbett formerly with the American Farm Bureau Federation has returned to the University of Maryland as Associate Dean and Director of the College of Agriculture.

Paul J. Findlen, Federal Extension Service leader in fruit and vegetable marketing, left Washington, D. C., on June 24 as a member of a ten-man FAO agricultural mission being sent to Poland at the request of the Polish government to survey that country's major agricultural problems. Dr. Findlen has been granted leave from the Extension Service to participate in this mission and will be responsible for problems relating to the marketing and preservation of perishable products.

C. G. Garman has resigned his position with the U.S.D.A. and is now operating a fruit farm at Burt, New York.

H. W. Hannah, Associate Professor of Agricultural Economics at the University of Illinois, is giving up his duties as Director of the Division of Special Services for War Veterans and returning full time to the Depart-

ment of Agricultural Economics to continue his work in the field of agricultural law.

Albert H. Harrington, assistant professor at the State College of Washington, has been granted leave to continue his graduate work leading towards a Ph.D. degree at the University of Illinois.

V. B. Hart is serving as Director of the "Bankers' School of Agriculture," which was established at Cornell University in 1946. The second school will be held August 11-15.

T. R. Hedges, formerly Head of the Department of Rural Economics and Sociology at the University of Arkansas, joined the staff of the Division of Agricultural Economics of the University of California in July. Dr. Hedges will be headquartered at the College of Agriculture at Davis.

W. C. Hopper, formerly Principal Economist in the Economics Division, Canadian Department of Agriculture, has transferred to the Canadian Department of Trade and Commerce as Canadian Trade Commissioner (Agricultural Specialist), and is being posted to Australia in this capacity.

Mrs. Helena Janes, a first assistant in agricultural economics at the University of Illinois has resigned.

Edwin A. Johnson, formerly with PMA field service branch, central region, joins the Federal Extension Service economics section marketing staff June 29. Before entering government service Mr. Johnson devoted seven years to marketing extension work in Kentucky. He will give immediate attention to the consumer educational aspects of marketing extension work and assist particularly in the central states in general marketing extension work.

Joseph M. Johnson recently accepted a position as Associate Professor of Marketing at Virginia Polytechnic Institute, Blacksburg, Virginia.

H. R. Kling became Associate Agricultural Statistician in the Bureau of Statistics of the New York State Department of Agriculture and Markets last March 1. He had formerly been employed by the Philadelphia Milk Marketing Administration.

D. A. Marshall was on leave of absence from the Department of Agricultural Economics, University of Arkansas, for the spring semester, 1947, to complete his graduate work at Cornell University.

D. A. B. Marshall, formerly a member of the staff of the Canadian Agricultural Prices Support Board, is now engaged in studies of Foreign Agriculture in the Economics Division, Canadian Department of Agriculture, Ottawa.

Orlo Maughan, head of the Department of Agricultural Economics at Washington State College was killed in an airplane accident recently.

W. I. Myers, Dean of the College of Agriculture at Cornell University, was recently presented an "Award for Outstanding Achievement" by the Cornell Class of 1914. President Edmund E. Day made the presentation.

B. C. Ochojski has accepted a position as production control specialist in the canning division of the G. L. F. Cooperative.

R. O. Olson and A. P. Ruderman will become assistant professors of Agricultural Economics at South Dakota State College beginning September, 1947. Dr. Ruderman comes from Colgate University, Hamilton, New York and Professor Olson comes from the University of Minnesota.

C. V. Parker, formerly Economist on the staff of the Canadian Wheat Board, Winnipeg, has been appointed Director, Agricultural Division, Dominion Bureau of Statistics, Ottawa.

M. N. Penny completed the residence requirements for his doctor's degree at Cornell University in June and has returned to his position at the Georgia Agricultural Experiment Station.

E. A. Perregaux, Head, Department of Agricultural Economics, University of Connecticut, will complete a year's leave as research consultant with the American Institute of Cooperation at the end of the annual meeting of the Institute at Fort Collins, Colorado. He has arranged a conference of teachers of Agricultural Cooperation at Fort Collins for the week prior to the Institute.

Arthur W. Peterson has been promoted to the rank of full professor at the State College of Washington.

C. V. Plath completed his graduate work for a doctor's degree at Cornell University in June and has accepted a position in the Department of Agricultural Economics at Purdue University. He will be doing land utilization work.

Gerald G. Quackenbush has been appointed Assistant Professor of Economics (Agricultural Economics) at Michigan State College. Dr. Quackenbush completed his graduate program at Purdue in June. At Michigan State he will work primarily in the field of dairy marketing.

J. B. Rutherford, formerly Director, Agricultural Division, Dominion Bureau of Statistics, Ottawa, has accepted a position in the Economics and Statistics Division of the Food and Agriculture Organization in Washington.

Raymond E. Seltzer has been appointed Associate Economist in the Department of Agricultural Economics, University of Arizona. His work will be confined to marketing research and teaching. Mr. Seltzer has degrees from the University of Illinois and the Kansas State College of Agriculture.

Frank Shefrin, Agricultural Economist, Economics Division, Canadian Department of Agriculture, Ottawa, completed the requirements for his master's degree at Iowa State College in June and is continuing graduate work in Agricultural Economics at the University of Chicago during the summer session.

W. Bruce Silcox will return to the U. S. Department of Agriculture Extension Service economics section on June 29, following several years with the PMA dairy branch. Dr. Silcox takes up his former position as extension leader in dairy and poultry marketing.

Ross Silkett of the Economic and Credit Research Division, Farm Credit Administration, Washington, D. C. was a member of a War Department mission to Germany during April, May and June. Its assignment was to advise on problems of restoring an effective system of agricultural education and research, including the revitalization of agricultural schools and research institutions.

Robert P. Story, has been appointed Instructor in Agricultural Economics and Assistant Agricultural Economist in the Vermont State Experiment Station effective July 1. As of the same date, Dr. Thurston M. Adams was promoted from Associate Professor to Professor of Agricultural Economics, Dr. Robert M. Carter from Assistant Professor to Associate Professor of Rural Sociology, and Dr. Sheldon W. Williams from Assistant Professor to Associate Professor of Agricultural Economics.

Maurice C. Taylor has completed work for his master's degree in Agricultural Economics and has accepted a position in the Department of Agricultural Economics at the State College of Washington.

P. J. Thair, formerly Assistant Economist in the Economics Division, Canadian Department of Agriculture, Ottawa, who has been continuing his graduate studies at Iowa State College during the past year has been awarded a Social Science Research Fellowship.

John F. Timmons has accepted a position as professor of land economics at Iowa State College. Dr. Timmons, formerly acting head of the land tenure section in the Land Economics Division of the Bureau of Agricultural Economics, will have charge of teaching and research in land economics.

Vladimir P. Timoshenko, Economist and Professor of Commodity Economics at the Food Research Institute of Stanford University, completed in May his term of service with the Economics Division, Office of Military Government (U.S.), Berlin, where he has served as chief of the production policies and program section in the Food and Agriculture Branch. Dr. Timoshenko has been on leave from the University since February 1946 to fulfill this assignment. Before returning to the United States in September, Dr. Timoshenko will visit Switzerland, Italy, France, Belgium, The

Netherlands, and Great Britain, gathering materials relative to sugar developments in Europe.

H. R. Varney resigned his position in Vermont July 1, 1947 to become Dean of the College of Agriculture at New Mexico State College.

Harold G. Walkup has completed work for his master's degree in Agricultural Economics and has accepted a position in the Department of Agricultural Economics at the State College of Washington.

E. G. Woodward, Department of Agricultural Economics, University of British Columbia, has joined the staff of the Economics Division, Canadian Department of Agriculture with headquarters at Vancouver.

E. J. Working, who was on leave of absence during the first semester to work at the University of Chicago on a study dealing with the demand for meat, returned to the University of Illinois for the second semester.

A research project attempting to define the scope and methods of forest economics has just been announced by the Charles Lathrop Pack Forestry Foundation and the Society of American Foresters.

The object of this study is to point up the economic problems of American forestry, and to clarify the nature of research needed to help solve them. It is hoped that some better organization of the basic principles of forest economics will eventuate, to provide future workers with more effective tools, and that a closer definition of the field may be reached, thus making it more attractive to able researchers and students.

Begun on July 1, under the joint sponsorship of the Foundation and the Society of American Foresters, the project was formulated by a committee of the Society's Division of Forest Economics, and will be carried out by the committee, under the chairmanship of William A. Duerr, a senior member of the society, and a member of the American Farm Economic Association. Other members of the committee who will participate in the study are Henry J. Vaux, of the California Forest Experiment Station, and Charles H. Stoddard, of St. Paul, Minn., Project Leader for the Pack Foundation's current study of forest farming.

The decision of the Foundation to support the project was based on its recognition of the relatively undeveloped status of forest economics and of the need for the inclusion of forest economics research of a high order in the solution of many major forestry problems.

It is expected that at least three years will be required to complete the study, and that it will culminate in a two-part report tentatively titled "Scope and Method of Research in the Economics of Forestry." It is planned that Part 1 will contain a general discussion of the economics of forestry, the economic problems of forestry, and the types of research needed to help solve them; Part 2 will embody a "case-method" series of study statements, each of which will define a specific research problem, and then consider the best ways of studying it, including the data needed, and the best methods of analysis. These statements will be sought from expe-

rienced foresters and economists, the country over, and it is hoped that their contributions will give not only a comprehensive picture of the many fields of forest economics—such as forest land use, forest management, industry, marketing and prices of forest products, consumption, income, employment, etc.—but also of the various research methods applicable.

For the project to succeed, the committee must win the collaboration of as many as possible of the men with research experience who can contribute to the bulletin. Aiding the committee in its search for such contributors, as well as in its review of writings submitted, will be a group of advisers representing the different branches of the economics of forestry.

Inquiries or suggestions regarding the project should be addressed to William A. Duerr at 5618 Canal Boulevard, New Orleans 19, La.

The following back issues of the JOURNAL are needed. If you have usable copies, the secretary-treasurer will pay \$1 each for:

Vol. XXVIII	(1946) No. 1 (Feb.), 2 (May), 3 (Aug.)
Vol. XXVII	(1945) No. 2 (May)
Vol. VI	(1923) No. 1 (Feb.)
Vol. V	(1922) No. 1 (Feb.)
Vol. IV	(1921) No. 1 (Feb.), 2 (May), 3 (Aug.), 4 (Nov.)
Vol. III	(1920) No. 1 (Feb.), 2 (May)
Vol. I	(1918) No. 1 (Feb.), 2 (May), 3 (Aug.), 4 (Nov.)

L. J. Norton, Secretary-Treasurer
305 Mumford Hall
University of Illinois
Urbana, Illinois

OBITUARIES

ALAN MACLEOD

Alan Grover MacLeod, Secretary of the New England Research Council from 1940 until his death on June 28, 1947, was born 42 years ago in Arlington Heights, Massachusetts. His boyhood was spent in Canada and he was graduated from the University of Saskatchewan as a chemist in 1927. Later he became interested in agricultural economics and studied at Harvard University in 1931 and 1932, receiving his Ph.D. degree in economics in 1941. He spent some time as a Consultant for the Brookings Institution in Washington and later served on the staffs of the University of New Hampshire and the University of Connecticut. During the summer of 1945, he was Economic Advisor to the Rehabilitation Committee for the Province of Manitoba, Canada, and was responsible for the preparation of a postwar planning report for that Province.

As Executive Secretary of the New England Research Council, Alan was a field agent of the Bureau of Agricultural Economics with headquarters in Boston, Massachusetts and, during the war years, in Storrs, Connecticut. He worked closely with agricultural economists in the New England States and was one of the leaders in the development of coordinated dairy marketing research projects for the Land Grant Colleges and Experiment Stations in the Northeastern and North Central regions. His work on a regional basis served as a model for many of the current proposals for regional work under the new Research and Marketing Act. He was a member of the Bureau of Agricultural Economics Committee on Economic Research in Marketing and of the Marketing Research Committee of the American Farm Economic Association. He was the author of many bulletins and articles in the field of agricultural economics, especially in dairy marketing.

There are few men of Alan's age who have reached such eminence in their field of work. The important positions he held speak eloquently of his outstanding ability and of the confidence which others had in him. His associates and friends had a profound respect for his thoroughness in research and his objectivity and intellectual integrity. These were combined with patience and calmness and a warm sense of humor that made him the friend of all who worked with him.

Dr. MacLeod is survived by his wife and two daughters and by his parents.

WALDO E. GRIMES

In the death of Dr. W. E. Grimes, agricultural economics lost an outstanding leader and an inspiring teacher; Kansas State College lost a forceful and loyal administrator; the community lost a civic leader who gave unstinted service; and members of his staff lost not only a professional adviser but a sincere and trusted friend. His death was caused by cerebral hemorrhage on May 23, 1947.

Born at Lee's Summit, Missouri, October 5, 1891, Dr. Grimes obtained his first experience in farm management on the home farm. He obtained formal training and enriched his experience by study at Kansas State College, where he received the degree of Bachelor of Science in Agriculture in 1913; by superintending the College's agronomy farm for one year; and by study at Cornell University in 1914-15 with Dr. George F. Warren, then the outstanding farm management specialist in the United States. At the University of Wisconsin, where he received the Ph.D. degree in 1923, he studied under Richard T. Ely, William A. Scott, and Benjamin H. Hibbard.

On September 15, 1914, Waldo Grimes had the good fortune to marry Ethel Roseberry, whose help and solicitude were an invaluable contribution to him, to their family of four children, and to the morale and fellowship of the departmental personnel.

Dr. Grimes was assistant professor of farm management, Kansas State College, 1915-18, and associate professor of agricultural economics, 1918-21. Since 1921 he was professor in charge of the Department of Agricultural Economics and since 1936 head of the Department of Economics and Sociology. He served as acting dean of agriculture and acting director of the Kansas Agricultural Experiment Station in 1934-35, and as visiting professor at the University of Chicago during the spring quarter of 1939.

He was a member of the American Economic Association, American Farm Economic Association (president in 1935), American Association for the Advancement of Science, Phi Kappa Phi, Sigma Xi, Alpha Zeta, Gamma Sigma Delta (past national president), Pi Kappa Delta, Pi Kappa Alpha, Manhattan Chamber of Commerce, Manhattan Rotary Club (past president), the Manhattan Country Club, and the Methodist Church.

Solely or as joint author he wrote extensively, his works including 44 bulletins, circulars, and professional papers; two books, *Making the Most of Agriculture* and *Modern Agriculture*; numerous articles

in farm papers; and book reviews for economic journals. If he had pursued a policy of including his name on all manuscripts on which he had a directing influence and on which he spent many hours in giving constructive criticism, the number of publications to his credit probably would have been at least doubled. One of his favorite mottoes was: "There is no limit to the amount of good a man can do if he does not care who gets the credit."

Throughout the quarter-century, under Dr. Grimes' direction and with his extensive participation, the department conducted numerous research projects independently or in cooperation with other agencies. Among these projects were those in the fields of farm management, taxation, land tenure, marketing, business management, and sociology. The results of this research have been applied extensively in the agriculture, industry, and government of Kansas and adjacent states. In addition to research, a great deal of service work was done for farmers and others interested in economic questions.

Some of his manifold activities aside from his regular administrative, teaching, and research duties are indicated by the fact that he was secretary-treasurer of the following organizations: three College mutual aid organizations—Teachers and Employees Association, Mutual Benefit Association, and Hospital Service Association; Kansas State College Endowment Association, Kansas State College Building Association, Pi Kappa Alpha Association, and the Intrafraternity Alumni Council of Kansas State College; secretary of the Board of Trustees of Wesley Foundation at K.S.C. and of the Committee on Intra-State Industrial Research Relations; and treasurer of the Alumni Association of K.S.C. and of all student loan funds. He was also prominent in many other activities—educational, religious, and civic.

Dr. Grimes is survived by his wife, Mrs. Ethel Grimes; one son, Ted Grimes, a student at Kansas State College; two daughters, Sarah Anna Grimes, Washington, D. C., and Mrs. Rosethel Elder, Fort Collins, Colorado. Another son, Eugene Grimes, was killed in a plane crash near Manhattan on August 18, 1946.

J. A. H.

PRELIMINARY ANNOUNCEMENT
PROGRAM OF THE ANNUAL MEETING—AMERICAN
FARM ECONOMIC ASSOCIATION

NORTHERN BAPTIST ASSEMBLY,
GREEN LAKE, WISCONSIN

SEPTEMBER 8, 9, 10, 11, 1947

Monday, September 8

Morning

9:00–10:00

Getting acquainted with your colleagues and your environment.
(There will be no separate association registration. Your registration
at the Administration Building at time of arrival will serve Association
purposes.)

9:00

Executive Committee, Conference Room 1, Brayton Case

11:00–11:45

Matters International, Morehouse Hall

Chairman: To be announced

1. The World Food Situation, Its Development and Outlook
J. N. Lewis, International Emergency Food Council
2. Significance of the Geneva Trade Conference to United States Agriculture
John A. Hopkins, Office of Foreign Agricultural Relations
3. The Dollar Position of our Foreign Buyers
Oscar Zaglits, Office of Foreign Agricultural Relations

Discussion

Wilfred Malenbaum, Department of State

11:45–12:00

General Assembly, Morehouse Hall

Arrangements, Plans, Announcements

Afternoon

2:00

- I. *Training Agricultural Economics Majors*, Morehouse Hall

Chairman: J. I. Falconer, Ohio State University

1. Some Considerations in Building a Curriculum for Agricultural
Economics Majors
Speaker to be announced

2. Training Agricultural Economics Majors for Business Careers
G. Burton Wood, Purdue University
3. Training Agricultural Economics Majors for Public Careers
Kenneth H. Parsons, University of Wisconsin

Discussion

A. A. Dowell, University of Minnesota
Oscar A. Day, Wilson and Company
Clayton V. Taylor, United States Civil Service Commission

II. *Statistical Problems*, Brayton Case, Room A
Chairman: F. V. Waugh, Council of Economic Advisers

1. Estimating the Relation between Consumption and Price
Elmer Working, University of Illinois
2. Construction of State Index Numbers of Farm Prices
Warren C. Waite, University of Minnesota
3. Types of Farm Income by Size
Nathan Koffsky, Bureau of Agricultural Economics
Discussion from the floor

III. *Capital Requirements of Agriculture*, Conference Building, Second Floor
Chairman: H. C. M. Case, University of Illinois

1. Methods of Financing Related to Asset Characteristics of Farms
Donald C. Horton, Bureau of Agricultural Economics
2. Capital Returns from Soil Conservation Practices
S. von Ciriacy-Wantrup, University of California

Discussion

G. W. Forster, University of North Carolina
Horace G. Porter, Federal Reserve Bank, Richmond
Aaron G. Nelson, Farm Credit Administration, Omaha

IV. *Land*, Brayton Case, Room B
Chairman: to be announced

1. The Present Situation and Important Trends in Land Ownership in the United States
John F. Timmons, Iowa State College
2. Current Issues and the Future of Federal Land Management in the Western United States
M. M. Kelso, Montana State College
3. Benefit Evaluations of Land and Water Conservation Measures
M. M. Regan and Everett Weitzell,
Bureau of Agricultural Economics

Discussion

Norris J. Anderson, Kansas State College
Raymond J. Penn, University of Wisconsin
Jack Holmes, University of New Mexico

Evening

8:00

Redefining Parity Price and Parity Income, Morehouse Hall
(A Committee Report)

Chairman: R. J. Eggert, American Meat Institute

Presentation of Committee Report by the Chairman

H. R. Wellman, University of California

A Minority Statement

O. V. Wells, Bureau of Agricultural Economics

Summary

R. K. Froker, University of Wisconsin

Discussion from the floor

Tuesday, September 9

Morning

5:30-8:30—Fishing, Golf, Tennis, Swimming, Boating

10:00

I. *Application of Statistical Methods to Farm Management Research*
—Craft Shop

Chairman: G. A. Pond, University of Minnesota

1. Sampling Techniques Applied to Farm Management Research

Earl E. Houseman, Bureau of Agricultural Economics

2. Appropriate Statistical Procedures for Analyzing Farm Management Data

P. G. Homeyer and E. O. Heady, Iowa State College

3. Tests of Reliability for Farm Management Data

Speaker to be announced

Discussion

Charles F. Sarle, Bureau of Agricultural Economics

II. *The Federally Sponsored Credit Services to American Agriculture*
(First Session), Brayton Case (Report of a Research Committee on Organization and Functions) Room A

Chairman: Walter B. Garver, Federal Reserve Bank, Chicago

1. Conditions and Problems the System Should be Designed to Meet

Karl Brandt, Food Research Institute

2. Suggestions for Strengthening the "Cooperative" Credit System

M. R. Benedict, University of California

3. Providing Needed Services Related to Credit
Glen Hedlund, Cornell University

Discussion

F. W. Peck, Farm Foundation
R. I. Nowell, The Equitable Life Assurance Society
H. B. Munger, Farm Credit Administration, Springfield,
Massachusetts

III. *Regional Cooperation in Marketing Research*, Morehouse Hall

Chairman: To be announced

(Speakers to be announced)

1. Regional Projects to be Financed by Flammagan-Hope Funds
2. Some Problems Involved in Regional Research
 - a. Types of Studies Best Suited to Regional Collaboration and Agencies that May Participate
 - b. Extent of and Arrangements for Collaboration Among Participating Agencies
 - c. Provisions for Preparation and Publication of Reports
 - d. Apportionment of Funds

IV. *Cooperatives in a Capitalistic Society*, Conference Building, Second Floor

Chairman: E. A. Perregaux, University of Connecticut

1. Cooperatives in a Capitalistic Economy
Fred Koller, University of Minnesota
2. Place of Cooperatives in a Sound Farm Economy
John W. Davis, National Council of Farmer Cooperatives

Discussion

Martin Abrahamsen, University of North Carolina
Harold Hedges, Farm Credit Administration
Raymond W. Miller, American Institute of Cooperation
W. L. Bradley, Certified Public Accountant, Buffalo, New York

Afternoon

2:00-3:30

Agriculture and the National Economy, Morehouse Hall

Chairman: J. K. Galbraith, Fortune Magazine

1. Stabilization of the General Price Level
J. Carroll Bottum, Purdue University
2. Effects of Employment upon Factor Costs in Agriculture
T. W. Schultz, University of Chicago

Discussion from the floor

3:30-4:30

Ladies' Tea—Terrace, Roger Williams Inn

Everybody Invited

Sponsored by Wisconsin Members, American Farm Economic Association

Evening

8:00

I. *Sampling Methods in Use in Farm Management Research*—Craft Shop

Chairman: Walter W. Wilcox, University of Wisconsin

A ten minute presentation of methods actually used will be made by each of the following:

K. T. Wright, Michigan Station

P. E. Johnston, University of Illinois

L. C. Cunningham, Cornell University

B. R. Hurt, Bureau of Agricultural Economics

S. A. Engene, University of Minnesota

Discussion from the floor

II. *The Federally Sponsored Credit Services to American Agriculture* (Second Session), Brayton Case, Room A

Chairman: To be announced

1. "The Direct Loan System," Policies and Organization

George H. Aull, Clemson College

2. Other Governmental Credit Services to Agriculture as Related to the Principal Farm Credit Agencies

William G. Murray, Iowa State College

Discussion

Frank J. Welch, Mississippi State College

(Other discussants to be announced.)

III. *New Approaches to the Study of Marketing Problems*—Morehouse Hall

(Illustrated by reports on recent or current studies)

(Speakers to be announced)

IV. *The Role of the Agricultural Economist in Farm Organization Programs and Policies*—Indian Village Lodge

Chairman, Milo Swanton, Wisconsin Council of Agriculture, Co-operative

1. The Nature of the Needs of Farm Organization Leaders for Basic Agricultural Economic Data

Lawrence H. Simerl, Illinois Agricultural Association

2. The Role of the Farm Organization Economist in the Formulation of Farm Organization Policy

Louis F. Herrmann, National Cooperative Milk Producers Federation

3. Problems of Effective Presentation of Agricultural Economic Data to the Membership of Farm Organizations
Lloyd C. Halvorson, National Grange
4. The Use of Agricultural Economic Data as a Basis for Legislative Action
Russell Smith, National Farmers Union

Discussion

W. Gordon Leith, National Council of Farmer Cooperatives

Wednesday, September 10

Morning

5:30–8:30—Fishing, Golf, Tennis, Swimming, Boating

10:00

- I. *Twenty-five Years of the Bureau of Agricultural Economics Past, Present, and Future*—Morehouse Hall
Chairman: H. C. Taylor, Farm Foundation
 1. The Early Years
Lloyd S. Tenny, Hilton, New York
 2. The Years in Between
John D. Black, Harvard University
 3. The Horizon
O. V. Wells, Bureau of Agricultural Economics
 Discussion from the floor

Afternoon

1:30

Excursion (Arranged by I. F. Hall, University of Wisconsin)
Obtain descriptive circular regarding details from Association Information Desk in Lobby, Roger Williams Inn.

Evening

8:00

Round Tables

- I. *The Use of Agricultural Statistics in Research, Extension, Marketing and in Schools*—Morehouse Hall
Chairman: E. W. Gaumnitz, National Cheese Institute
 1. Data Needs for Agricultural Research and Marketing
R. L. Gillett, Agricultural Statistician, New York
M. C. Bond, Cornell University

Discussion

- A. C. Hoffman, Kraft Foods Company
2. Agricultural Data Needs in Extension Work

Clarence D. Caparoon, Agricultural Statistician, Wisconsin
E. A. Jorgenson, University of Wisconsin

Discussion

Speaker to be announced

3. The Use of Agricultural Statistics in Schools
Walter H. Ebling, Agricultural Statistician, Wisconsin
L. M. Sasman, Department of Vocational Education, Wisconsin

Discussion

S. J. Gilbert, Agricultural Statistician, South Dakota

II. *History and Agricultural Economics*—Indian Village Lodge
Chairman: Earl D. Ross, Iowa State College

1. The Methods and Objectives of Agricultural Economics
Bushrod W. Allin, Bureau of Agricultural Economics
2. History and Agriculture
Speaker to be announced

Discussion

Theodore Salontos, University of California, Los Angeles
W. H. Glover, Wisconsin Historical Society

III. *Farm Management Extension*—John Clark Lodge
Chairman: Carl Malone, Iowa State College
Program to be arranged.

IV. *Work Simplification*—Brayton Case, Room A
Chairman: S. A. Engene, University of Minnesota

1. Recent Significant Developments in Work Simplification Research
R. M. Carter, University of Vermont
2. Teaching Work Simplification on the College Level
S. A. Engene, University of Minnesota
3. A Manual on Work Simplification in Agriculture
L. M. Vaughan, Extension Service, United States Department of Agriculture
Discussion from the floor

V. *Econometric Models in Agriculture, Problems in Construction and Interpretation*—Conference Building, Second Floor
Chairman: T. W. Schultz, University of Chicago

1. The Role of Econometric Models in Agricultural Research
Gershon Cooper, University of Chicago
2. The Use of Econometric Models in Agricultural Microeconomic Studies
George M. Kuznets, University of California, Berkeley

3. The Use of Econometric Models in the Study of Agricultural Policy

D. Gale Johnson, University of Chicago

Discussion

M. Bronfenbrenner, University of Wisconsin

J. P. Cavin, Bureau of Agricultural Economics

VI. *Farm Management Teaching*—Craft Shop

Chairman: E. B. Hill, Michigan State College

Course Outlines now in use in the basic farm management courses will be presented by:

L. H. Brown, Michigan State College

D. A. Paarlberg, Purdue University

W. N. Thompson, University of Illinois

S. W. Warren, Cornell University

Thursday, September 11

Morning

5:30–8:30—Fishing, Golf, Tennis, Swimming, Boating

9:30–10:30—Business Meeting, Morehouse Hall

10:30—*International Organizations*—Morehouse Hall

Chairman: To be announced.

1. International Federation of Agricultural Producers

Allan B. Kline, Iowa Farm Bureau Federation

2. The International Conference of Agricultural Economists, Retrospective and Prospective

L. J. Norton, University of Illinois

Discussion from the floor

12:30—Luncheon Meeting—Rogers Williams Inn

The Rural Planning Program in England

Chairman: Asher Hobson, University of Wisconsin

1. The Program

A. N. Duckham, British Embassy, Washington, D. C.

2. An Appraisal

W. M. Drummond, Ontario Agricultural College, Canada

Discussion

John M. Cassels, Department of Commerce

ANNUAL MEETING AMERICAN FARM ECONOMIC ASSOCIATION

GREEN LAKE, WISCONSIN

SEPTEMBER 8-11, INC., 1947

Train and Bus Schedules for Reaching Green Lake, Wisconsin

Members traveling to Green Lake by train are urged to arrive on Sunday, September 7. Busses will meet the train arriving at Fond du Lac Sunday at 12:10 and at 6:40. A bus will also meet the Saturday night train arriving Green Lake at 7:38. If the demand is sufficient, a bus can be arranged for to meet the Saturday train arriving in Fond du Lac at 12:50. There is no Sunday train to Green Lake.

Chicago North Western Railroad Line

	Leave Chicago	Leave Milwaukee	Arrive Fond du Lac	Arrive Green Lake
Sundays	9:30 A.M.	11:02 A.M.	12:10 P.M.	————
Sundays	4:10 P.M.	5:35 P.M.	6:40 P.M.	————
Week Days	9:45 A.M.	11:15 A.M.	12:50 P.M.	————
Week Days	4:10 P.M.	5:35 P.M.	6:40 P.M.	7:38 P.M.

Those coming from Minneapolis and the Northwest should plan to make connections through Milwaukee.

Greyhound Bus Line

Leaves Milwaukee	Arrives Green Lake
10:20 A.M.	1:28 P.M.
4:00 P.M.	6:50 P.M.

Be sure to notify J. C. Clark, Green Lake, Wisconsin, of the time and place of your arrival and whether coming by train, bus or private car. Also state first meal.

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THE ECONOMIC STABILITY OF AMERICAN AGRICULTURE

THEODORE W. SCHULTZ*
The University of Chicago

EXISTING beliefs with regard to economic fluctuations are in sharp contrast with those on efficiency with no illusion that all has been going well. In agriculture, for one reason or another, the farm problem, so much in the forefront during the interwar years, has been associated altogether too largely with economic instability.¹ The notion lingers that the production of food is still a matter of feast or famine as it was of old, and as it still is in most of the less developed countries. Wars, booms, and depressions have focused attention on the gyrations of farm prices, at one stage rising and soaring abruptly to absurd heights and at another falling to unbelievable depths. Farm people are at one time the recipients of large unexpected windfalls, and at another suffer losses bringing about widespread bankruptcy. Yet oddly enough there also is the view that hard times may come and go without seriously affecting farm people, for they, it is often presumed above all other groups, are always secure in having enough food, fuel and shelter.

This mixture of beliefs is also characteristic of the thinking in economics when it comes to agriculture. More important, however, is the fact that no general principles have been established for analyzing the problem of instability, principles that are on a footing

* The tables in this paper were prepared by Dale Knight. In revising an earlier draft of this paper, I am indebted to O. H. Brownlee, R. K. Froker, D. Gale Johnson, D. L. MacFarlane, F. V. Waugh, and H. R. Wellman for valuable suggestions.

¹ As a consequence there has been a tendency to overlook (a) the long run allocative inefficiency characteristics of so much of agriculture; (on this aspect see my paper "How Efficient is American Agriculture?" this JOURNAL, August, 1947). (b) the inequality in incomes within agriculture, (c) the inadequacy of farm tenure and other institutions.

with those employed in ascertaining whether an optimum utilization of resources is achieved in the long run. The analytical tools with which economists work have not been designed to handle problems of the type on which we are focusing, that is, for *dealing with the short and sudden fluctuations of the main economic aggregates*. Accordingly, we do not have at hand the concepts or theory for formulating the problem, for identifying its primary characteristics, and for making an analysis. Economic theory in this sphere is in general unsettled; several schools of thought hold forth but none has had the strength to win the field.²

Let us start with the query: What do we mean by economic instability? One important line of inquiry is to determine whether a given economic system has the capacity to work its way back toward an equilibrium³ after a particular type of disequilibrium has occurred. Another approach begins with the presupposition that the economic system does have the capacity to equilibrate and seeks to find out how far given movements will go before the equilibrating forces become effective. Still another approach starts from the belief that the movements of the main economic aggregates are too great (presumably too "costly") before the equilibrating capacity takes hold, and endeavors to discover how to enhance the capacity of the economic system to achieve greater stability. In this paper we shall have occasion to direct attention to unsettled issues falling in one or the other of these three categories.

Given the existing state of our knowledge we can only speculate with regard to the economic magnitudes likely to prove significant and useful in analyzing the problem of economic instability as related to agriculture. Production, prices, and income undoubtedly have a high priority from a policy point of view. They certainly will provide a clew to certain types of instability, although none of them will give any clear and definite notion of the "cost" of the

² Two remarks are called for at this point. (1) Although the analytical equipment for ascertaining economic efficiency is firmly established, it nevertheless is exceedingly abstract and as yet when applied yields results that are usually of limited usefulness. Accordingly, it is easy to claim too much for analyses dealing with economic efficiency; (2) an awkward gap exists between equilibrium theory based on the rationality of firm and household behavior and fluctuation or cycle theory. This is the gap that separates the *micro*-economics of firms and households and the *macro*-economics of aggregates. (See Professor J. Marschaks comments on this point, "A Cross Section of Business Cycle Discussion," *The American Economic Review*, vol. 35, 1945.)

³ By equilibrium in this context I mean achieving full employment at essentially stable prices.

instability thus identified.⁴ Nor will these magnitudes necessarily tell us how to proceed to counteract the fluctuations, nor will they explain why they occur. Nevertheless, a crude, first approximation of the nature of the instability problem confronting agriculture in this sphere may be achieved by examining their movements.)

Production. To achieve full employment⁵ and maintain it is a policy objective that has high priority. It is so because of the social necessity of avoiding mass unemployment. No doubt the most serious social consequence of our unstable economy arises from its erratic production that has come to characterize many major industries. But agriculture is not one of them.⁶ Agricultural output

⁴ These "costs" are nevertheless large and important as we will show below in the case of marketing. Given the existing instability in farm prices and incomes, the market for farm products is not permitted to function efficiently. In agricultural production the chief costs are in terms of adverse effects on allocative efficiency arising from mistaken expectations and failure of alternatives to present themselves. In addition there is a cost in the fluctuations in income to the individual income recipients.

⁵ Although much has been said on the term "full employment," the concept is still chiefly a political goal very loosely visualized. To make headway it is necessary to put it into a policy context so that it may be more useful in dealing with significant public policy issues. To do this, several steps are required. At this stage of our knowledge regarding the cycle and the way an economy develops, "full employment" is at best a relative concept and not some absolute amount of employment. In broad outlines there are two different policy settings for which we should formulate the concept of full employment. One of these, on which virtually all of the current discussions appears to focus, has to do with the cycle, that is, with the sharp and sudden fluctuations in aggregate demand. When demand becomes markedly deficient, deflation and too little employment occur and when it becomes excessive, inflation in terms of factor and product prices follows. As yet we are not able to identify satisfactorily when either of these situations is beginning to occur.

The second policy setting takes us back to the longer run allocative efficiency of a developing economy giving rise to conditions where the expanding sectors of the economy are likely to engage too few resources (over-employment of the resources already devoted to such production) and where the contrasting sectors use too many resources (under-employment of the resources being used). It would simplify matters greatly if these two sets of circumstances were neatly separated, but unfortunately they occur all bundled together. To illustrate, late in 1946 and early in 1947 the early post-war transition, driven by very swollen demands for goods and services, gave rise to a marked inflation and too much employment demand in the dominating sectors of business in a short-run cyclical context. As this excessive employment materialized there existed at the same time considerable under-employment in a long run context because several million workers, especially in Southern agriculture, continued to remain grossly under-employed because of the excessive supply of labor in farming in that area, a problem of long standing.

⁶ For a meticulous treatment of the cyclical characteristics of selected business activities see Arthur F. Burns and Wesley C. Mitchell, *Measuring Business Cycles*, National Bureau of Economic Research, 1946. This study, however, omits agriculture. For reference to more recent work in this area by the National Bureau see my remarks in footnote 12 bearing on the study of Geoffrey H. Moore on *Harvest Cycles*. See also John K. Galbraith and John D. Black, "The Maintenance of Agricultural Production During Depression: The Explanations Reviewed," *The Journal of Political Economy*, Vol. 46 (1938).

is not afflicted by the "business" cycle virus. The following data give some clew to this difference in agricultural and industrial production on this score.

Change in production from the preceding year (in percent)	Agricultural production ^a 1910-1946 (Number of years)	Industrial production ^b 1919-1945 (Number of years)
+26 to +30	—	2
+21 to +25	—	3
+16 to +20	—	4
+11 to +15	1	2
+ 6 to +10	4	4
0 to \pm 5	29	4
- 6 to -10	2	1
-11 to -15	—	1
-16 to -20	—	2
-21 to -25	—	3
Average variation (in percent)	3.9	15.0

^a This is based on the USDA regular production index of production for sale and consumption. It gives the best measure of the current year volume of farm products which enter the marketing system and thus contribute to gross cash or realized farm income. See *USDA Farm Production in War and Peace*, F. M. 53 by Glen T. Barton, and Martin R. Cooper, 1945. Especially p. 66 to 71.

^b From Federal Reserve Board Bulletin.

It is obvious from an inspection of these data that American agricultural production *taken as a whole* is remarkably stable. Only twice during the last three and a half decades did aggregate output fall more than 5 percent from the preceding year, namely 10 percent in 1921 and 6 percent in 1932. In both cases the drop was caused by what happened in crops, for livestock output stayed almost constant. The sharp depression of 1920-21 may have been a minor factor although the total crop acreage did not change appreciably,⁷ suggesting that a drop in yields was the main cause. In the other case, the crop acreage actually increased between 4 and 5 million acres. Accordingly it is hard to ascribe even these relatively small decreases to the downward shift in aggregate demand.⁸

⁷ See p. 84 of the *1924 Yearbook of Agriculture*. Total crop acreage in 1920 was 347,634,000, and 1921, 348,178,000.

⁸ It should not go unnoticed that neither the 1934 nor the 1936 drought pulled aggregate agricultural production (for sale and consumption) down as much as six per cent from that of the preceding year. Note, however, that the new index (see below) measuring gross farm production shows a marked drop for these years.

Change in production from preceding year (in percent)	All farm commodities (No. of years)	All livestock and livestock products (No. of years)	All crops (No. of years)
+16 and more	—	—	3
+11 to +15	1	—	5
+ 6 to +10	4	7	5
from 0 to ± 5	29	27	12
— 6 to —10	2	1	6
—11 to —15	—	1 ^a	4 ^b
—16 and less	—	—	1 ^c
Average variation (in percent)	3.9	3.6	9.5

^a 1935; ^b 1913, 1916, 1932, and 1934; ^c 1921 dropped 22 percent.

These data seem to support the following tentative inferences:

- (1) The aggregate output of American agriculture is, if anything, conspicuously stable;
- (2) It is not affected adversely in the short run by a drop in aggregate demand such as occurred in 1920–21, 1930–33, and 1937–38;
- (3) Nor, contrary to general opinion, is the aggregate output of agriculture affected substantially from year to year by changes in weather; and
- (4) The aggregate production effort (input of resources) in agriculture is probably even more stable than is the aggregate output (production for sale and consumption).

It may be observed that the aggregate output of agriculture in the United States provides consumers about the same volume of farm products during a depression as in prosperous years; that "big crops" do not come along to "help" business recover from a depression; that attempts to make agricultural production a variable, even on such a colossal scale as that of the AAA in the 'thirties, did not reduce agricultural output as a whole; and that the adverse effects of business depressions creep into agriculture and seriously upset prices and income but not production as a whole. Thus far, at least, farmers have not responded to a cyclical decline in the aggregate demand for farm products by curtailing the employment of land and labor.⁹

⁹ There is need for inquiry on this point to ascertain (1) the nature of the supply response of producers of farm products to cyclical changes in demand, (2) types of responses that characterize different producers, and (3) the economic rationale underlying the production decisions of producers in response to the cycle.

This does pose a significant issue: why is the aggregate output of agriculture in the United States so stable, despite the vagaries of weather and of business cycles? More particularly in this context, why is agriculture so immune to the cycle virus? If we can identify the causes for this immunity, may it not suggest an antitoxin for what now plagues so much of our non-agricultural economy?

If these observations create the impression that each of the several parts of agriculture also has a stable production record, it needs to be corrected. In fact, agricultural production as an aggregate hides a lot of "costly" variability, so much that one might well ask what meaning can be attached to the aggregate. The Bureau of Agricultural Economics (Glen T. Barton and Martin F. Cooper already cited) has developed a set of indices for *gross farm production* by geographic regions which show three regions (New England, Pacific, and Middle Atlantic) with average mean deviations from 3.2 to 4.4 percent; four additional regions (East North Central, Mountain, South Atlantic and East South Central) falling between 6.7 and 8.1 percent; and the West North Central at 10.7 percent with the West South Central having the most extreme record, namely a mean average deviation of 11.7 percent. The year to year variations in gross farm production from 1919 to 1945 are given in the table on the next page.

It is also plain from the data that follow that particular farm products are far from stable in output. Moreover, these fluctuations give rise to specific problems. These fluctuations in product output are mainly caused by variations in yields. The situation in feed crops is striking, and because of the importance of feed in the agricultural economy of the United States there is a strong presumption that it deserves serious attention. Furthermore, it should be noted that although the aggregate output of agriculture is notably stable, a fortunate situation from the point of view of the economy as a whole, the variations in production on individual farms is a basic consideration to the farm family concerned. These variations from farm to farm are obviously hidden by a national average. We may presume, however, that in the main they are not caused by the periodic rise and fall of the aggregate demand but by technical production circumstances such as weather, disease, insects, damage and others.

It may well be true that a few particular products will, upon closer analysis, show expansion and contraction characteristics over

Change in gross farm production from preceding year (in percent)	United States	New England	Pacific	Middle Atlantic	East North Central	Mountain	South Atlantic	East South Central	West North Central	West South Central
(Number of years)										
+31 and more	—	—	—	—	—	—	—	—	2	2
+21 to +30	1	—	—	—	2	—	—	—	—	1
+16 to +20	1	—	—	—	1	1	1	2	1	1
+11 to +15	—	—	1	1	—	2	4	1	1	2
+6 to +10	3	3	5	4	4	7	4	5	5	4
0 to ± 5	17	19	18	16	12	10	11	10	10	5
— 6 to —10	3	3	—	3	4	3	3	3	3	5
—11 to —15	1 ^a	—	1 ^b	1 ^c	2 ^d	2 ^e	—	3 ^g	—	3 ^l
—16 to —20	—	—	—	—	—	—	2 ^f	1 ^h	—	1 ^m
—21 to —30	—	—	—	—	—	—	—	—	1 ⁱ	1 ⁿ
—31 and less	—	—	—	—	—	—	—	—	1 ^k	—
Average deviation (in percent)	5.5	3.2	4.4	4.4	6.7	6.8	7.7	8.1	10.7	11.7

^a 1934; ^b 1924; ^c 1921; ^d 1933, 1936; ^e 1933; ^f 1921, 1932; ^g 1927, 1930, 1938; ^h 1932; ⁱ 1933; ^j 1936; ^k 1934; ^l 1927, 1933, 1938; ^m 1921; ⁿ 1934.

Data for regions are for the period 1919 to 1944, for the United States from 1919 to 1945. Source: *op. cit.* Barton and Cooper, pp. 73–83.

the cycle akin to those of industry. The principal policy consideration for agriculture taken as a whole, however, is not one of achieving tolerable production stability but to maintain that which has developed.

Prices. How unstable are farm product and factor prices? To give this query meaning it is necessary to indicate what it is we want the price system to achieve and what are the criteria for identifying this achievement. In an economic context prices have an important and unique role to perform in connection with the valuation of products and factors.¹⁰

¹⁰ The remainder of this section deals with markets for farm products. Markets for factors employed in farming—land, labor, equipment, machinery, materials, etc.—also present problems in terms of stability. Booms and busts in land prices is an old story in the United States. More recently wars and their aftermath have introduced marked instability in the land market. Wage rates in agriculture are about as variable as is the income from farming. To my knowledge no attempt has been made to ascertain how efficiently the *factor markets* serving agriculture function. The criteria for determining efficiency in this context have not been developed. In general, however, this much seems obvious: These factor markets are important; they appear to be unstable cyclewise and especially in going from peace to war to

Our quest is for an efficient pricing system, efficient in performing several functions that integrate major economic processes. As policy with regard to farm prices has taken shape, four fairly distinct functions have come to the fore-front, namely: (1) prices to guide the allocation of resources in production; (2) prices to channel products into trade both at home and abroad; (3) prices to distribute income from farming over time, and (4) prices to distribute income among persons.

Can a pricing system be "efficient" in all of these functions at one and the same time? Are we not putting altogether too big a burden on the pricing system and thereby weakening it and making it less efficient than it otherwise would be in performing the more limited tasks that are appropriate to its capacity? The answer to the latter question appears to be strongly in the affirmative, both on theoretical grounds and from the lessons taught to us by experience.

Let me make explicit at this point that the formulation of the pricing problem that follows is based on the belief that prices are not an appropriate means for "stabilizing" the income from farming over time, and also that they are not suited to lessen the

peace; they have been quite inefficient over the years in bringing about factor equilibrium for the economy as a whole in view of the great excess of labor resources embedded in farming and the substantial deficit of capital that characterizes much of agriculture. Some insight with regard to the fluctuations of factor prices of agriculture is to be had from the following data:

PRICE CHANGES OF FACTORS USED IN AGRICULTURE, 1910-1945

Price Change from Preceding Year (in percent)	Farm Machinery	Equipment and Supplies	Land (value per acre)	Prices paid in Production	Fertilizer	Bldg. Mat'l Other Than House	Labor Weighted Average Rate per Month	Land (Gross Rent to Landlords)
	(Number of years)							
+31 and above	1	2	1	1	1	—	2	2
+21 to +30	—	1	—	1	—	3	3	2
+16 to +20	1	—	1	3	3	2	4	2
+11 to +15	—	—	—	—	—	—	—	5
+6 to +10	—	4	5	5	7	7	4	6
0 to ± 5	32	24	20	20	19	19	15	11
— 6 to —10	—	2	2	2	2	2	1	—
—11 to —15	1	1	1	2	1	1	1	1
—16 to —20	—	1	2	1	2	—	—	1
—21 to —30	—	—	—	—	—	1 ^a	2 ^b	3 ^d
—31 and less	—	—	—	—	—	—	1 ^c	1 ^e
Average deviation (in percent)	3.5	5.4	5.0	6.7	6.1	6.2	11.1	13.2

^a 1921; ^b 1931, 1932; ^c 1921; ^d 1920, 1921, 1932; ^e 1931.

TABLE I
THE FOLLOWING DATA FOCUS ATTENTION ON THE YEAR TO YEAR CHANGES IN AGRICULTURAL PRODUCTION OF
SELECTED MAJOR PRODUCTS:
(from 1910 to 1946 except for sheep, lambs and hogs which cover the years from 1910 to 1945)

Changes in production from preceding year (in percent)	Dairy prod- ucts	Poul- try and eggs	Cattle and calves	Meat ani- mals	Sheep and lambs	Hogs	Wheat	Food grains	Corn	Fruits and tree nuts	To- bacco	Cotton	Oil bear- ing crops	Pota- toes	Feed crops
+31 and more	—	—	—	—	—	—	2	2	2	4	4	3	8	2	3
+21 to +30	—	—	—	—	1	3	2	5	2	3	2	2	3	3	5
+16 to +20	—	1	—	—	1	2	4	1	3	2	2	3	3	3	0
+11 to +15	—	1	—	4	2	3	2	2	5	2	5	4	2	4	2
+ 6 to +10	—	8	8	9	6	2	3	4	3	5	4	4	4	2	7
from 0 to ± 5	36	25	22	18	18	18	14	11	9	7	7	7	5	5	4
— 6 to —10	—	1	4	4	4	4	1	3	3	5	3	3	2	5	3
—11 to —15	—	—	1	—	2	1	3	1	2	3	3	3	3	6	3
—16 to —20	—	—	—	—	1	1	2	5	3	1	2	—	2	3	4
—21 to —30	—	—	—	1	—	1	2	1	2	3	2	5	2	2	3
—31 and less	—	—	—	—	—	—	1	1	2	1	2	2	2	—	2
Average deviation (in percent)	2.1	4.1	4.6	5.9	6.7	8.6	13.1	14.5	16.1	16.2	15.9	16.2	22.5	14.5	21.4

inequality in the personal distribution of incomes. Moreover, I shall assume that the main positive role of the pricing system is to guide production and to channel products into trade for domestic and foreign use. To take still another step, given the existing state of our political economy—chiefly the prevailing attitudes toward economic policy, the nature and capacity of economic institutions, and the type of development that characterizes our economy—it is my belief that that part of the pricing system on which agriculture depends most directly *will not be permitted* (politically and institutionally) to perform its production and marketing functions efficiently, unless ways and means are first found (1) to make the flow of farm income much steadier than it has been from one year to another and (2) to reduce substantially the inequality in income among families. The first of these is, politically, much the more urgent of the two. Plainly we have come out of the interwar period and the late war with a price policy for agriculture designed primarily to attain the objective of stabilizing farm incomes over time. If this appraisal proves to be correct, it follows that a high priority should be given to inquiry for finding ways and means that will free the pricing system from the two income burdens described above, especially that of putting the flow of farm income on a steadier basis.

Let us then proceed by leaving the income problems aside which means that we shall assume at this point that the pricing system is freed so that it can concentrate on the first two functions outlined above, namely guide agricultural production and channel farm products among their various uses—How efficient would such a pricing system be? When put this way, there is still a strong presumption, in my judgment, that the pricing system would prove to be quite inefficient under conditions of the kind that have prevailed since 1910–1914.

This takes us to the heart of the difficulty because there can be little doubt that it has been the unstable character of the economy that has undermined the pricing system. In its simplest terms what appears to have been happening has been a breaking apart of the network of prices connecting the decisions to utilize resources for production and the decisions to utilize products for consumption. This separation has come about as a result of inconsistencies that have emerged between the long and the short run when the aggregates of an economy are fluctuating widely. The commitments with regard to factors to achieve allocative efficiency in farming involve

production plans that are essentially long run in nature relative to the kind of commitments that arise when processors and other handlers buy farm products with a view of marketing them to consumers. In an economy with a steady rate of development and with relatively little economic uncertainty—like the years,¹¹ say, from 1895 up to World War I—these two sets of decisions may be sufficiently integrated by the pricing system to give satisfactory results, results approximating the economist norm based on a stationary state in equilibrium. Since 1910–1914, however, the economy has been so unstable, economic uncertainty has bulked so large, and the fluctuations in farm prices¹² have been so violent and

¹¹ It is significant that the *peaks* and *troughs* of the business cycles that Burns and Mitchell identify (in *Measuring Business Cycles*, Appendix A, Table A1) do not appear to have been important in farm price changes that occurred during the period 1894 to 1915:

	<i>Stage of cycle</i>	<i>Index of farm product prices^a</i>
1894 (May, June, July)	Trough	60
1895 (Nov., Dec. & Jan. 1896)	Peak	59
1897 (May, June, July)	Trough	57
1899 (May, June, July)	Peak	61
1900 (Nov., Dec. & Jan. 1901)	Trough	74
1902 (Aug., Sept., Oct.)	Peak	82
1904 (July, Aug., Sept.)	Trough	81
1907 (Apr., May, June)	Peak	86
1908 (May, June, July)	Trough	87
1909 (Dec. & Jan., Feb. 1910)	Peak	107
1911 (Dec. & Jan., Feb. 1912)	Trough	97
1912 (Dec. & Jan., Feb. 1913)	Peak	99
1914 (Nov., Dec. & Jan. 1915)	Trough	98

^a Warren and Pearson, *Cornell Memoir* 142.

¹² Again taking the *peaks* and *troughs* of business cycles from Burns and Mitchell and relating these to changes in farm prices the wide swings appear to be very close:

	<i>Stage of cycle^a</i>	<i>Index of farm prices^b</i>
1914 (Nov., Dec. & Jan. 1915)	Trough	98
1918 (July, Aug., Sept.)	Peak	207
1919 (March, Apr., May)	Trough	210
1919 (Dec., Jan. & Feb. 1920)	Peak	227
1921 (Aug., Sept., Oct.)	Trough	128
1923 (Apr., May, June)	Peak	142
1924 (June, July, Aug.)	Trough	140
1926 (Sept., Oct., Nov.)	Peak	142
1927 (Nov., Dec. & Jan. 1928)	Trough	151
1929 (May, June, July)	Peak	146
1933 (Feb., Mar., Apr.)	Trough	59
1937 (Apr., May, June)	Peak	128

^a *Measuring Business Cycles*, Appendix A, Table A1.

^b U.S.D.A. Index numbers of Prices Received by Farmers, 1910–1943. Washington, D. C., Feb. 1944.

After completing this paper I have had the privilege of reading Geoffrey H.

great that the pricing system could not integrate these two sets of decisions. As a consequence a gap has appeared in the network of prices. In short, conditions have been such that the pricing system has not been able to guide the allocative process in production efficiently and at the same time keep farm products moving into foreign and domestic markets at a rate consistent with short run developments.

Before turning to lines of inquiry that this formulation calls for, it will be useful to examine briefly some data showing the few, small changes in agricultural production compared to many large changes that have occurred in farm prices. The data that follow are based on changes from the preceding year:

Change from preceding year (in percent)	Agricultural production 1910-1946 (No. of years)	All farm commodity prices 1910-1946 (No. of years)	Crop prices 1910-1946 (No. of years)	Livestock and livestock production prices 1910-1946 (No. of years)
+31 and more	—	2	3	2
+21 to +30	—	5	2	2
+16 to +20	—	2	2	4
+11 to +15	1	1	4	2
+ 6 to +10	4	6	4	5
from 0 to ± 5	29	14	14	14
- 6 to -10	2	2	1	1
-11 to -15	—	1	2	2
-16 to -20	—	—	—	1
-21 to -30	—	2 ^a	2 ^c	2 ^e
-31 and less	—	1 ^b	2 ^d	1 ^f
Average variation (in percent)	3.9	12.3	14.2	12.0

^a 1931, 1932; ^b 1921; ^c 1932, 1933; ^d 1921, 1931; ^e 1931, 1932; ^f 1921.

Moore's Ph.D. thesis, *Harvest Cycles*, growing out of his researches with the National Bureau of Economic Research. I wish to call attention to Moore's findings by drawing briefly upon Chapter III of his thesis as follows: "... we can safely conclude that cyclical changes in business conditions are, on the average, a relatively unimportant cause of changes in the output of most of the more important crops in the four countries, or of total crop production in each country" (Ch. III, p. 2). As to prices Moore points out "There is striking evidence in our materials that crop prices have consistently been deflated in severe business contractions and inflated in vigorous expansions, in the 19th as well as in the 20th century" (Ch. III, p. 24). "However ... declines in crop prices tend to predominate in mild business expansions and rises to predominate in both mild and moderate contractions" (Ch. III, p. 29).

At this point several tentative views with regard to farm prices and their instability may be indicated with the view that these may serve, at least, as working hypotheses for inquiry into this field.

1. The principal policy objective in this sphere should be to develop an efficient pricing system, efficient in performing two major functions, that of guiding allocative decisions in agricultural production and that of channeling farm products to consumers.
2. The pricing system is not an appropriate means for stabilizing income from farming over time. To place this burden on the pricing system, as has been done in recent years, can only reduce greatly its capacity to perform the two functions for which it is an appropriate means. Improving the personal distribution of income among families and more especially its distribution over time, need to be achieved by means other than prices.
3. Under fairly stable economic conditions (such as appeared to have prevailed from about 1895 to 1915, for example) the pricing system may succeed to integrate its two major functions.
4. Under distinctly unstable conditions (such as have been occurring since World War I for instance) the pricing system loses its capacity to integrate the relatively long run production decisions and the comparatively short run decisions involved in the distribution and marketing of farm products.
5. To avoid this disintegration of the pricing system the first lines of defense are measures that will counteract business cycles and wars. This is, however, a big order and meanwhile other measures need to be developed to keep the pricing system from disintegrating under unstable economic conditions.
6. This formulation indicates that it may prove necessary, under unstable economic conditions to approach the two functions

"... The positive conformity of crop prices in long and violent business cycles is unquestionably a demand phenomenon" (Ch. III, p. 35). Moore asks why should crop prices have an inverted relation to the mild cycle, but he does not find a satisfactory answer although he sees a clew in changes in world crops relative to domestic crops. Moore also finds that, "specific cycles in crop harvests pursue their courses almost entirely free of the influence of business cycles" (Ch. III, p. 65).

The Twenty-Seventh Annual Report of the National Bureau, *Stepping Stones Towards the Future*, Arthur F. Burns, March, 1947, pp. 42-46, includes a short statement on agriculture prepared by Geoffrey H. Moore.

TABLE II
(The period covered is from 1910 to 1946 except cattle and calves, hay, corn, sheep and lambs, wheat and potatoes, which are for 1910 to 1945)

Changes in price (in percent)	Dairy products	Milk, wholesale	Livestock and livestock products	All crops	All commodities	Meat animals	Feed crops	Poultry and eggs	Cotton	Tobacco	Fruits and tree nuts	Cattle and calves	Eggs	Hay	Corn	Sheep and lambs	Food grains	Wheat	Hogs	Oil bearing crops	Potatoes	
+31 and more	1	2	2	3	3	3	3	1	10	5	3	1	1	2	3	2	4	4	4	5	7	11
+21 to +30	2	1	2	2	5	3	4	4	—	5	2	3	5	3	6	—	3	3	3	2	2	2
+16 to +20	4	5	4	2	2	1	2	2	1	2	5	4	1	2	1	4	5	1	1	3	1	—
+11 to +15	3	3	2	4	1	6	6	4	1	1	3	4	5	5	5	7	5	5	4	4	3	3
+ 6 to +10	4	5	5	4	9	2	3	4	3	2	3	4	4	5	5	7	5	4	4	6	6	1
from 0 to ±5	15	14	14	14	14	12	11	11	10	10	10	10	9	9	7	7	6	6	6	5	5	3
— 6 to -10	2	2	1	1	2	2	1	3	—	1	2	3	2	5	3	3	2	2	2	2	3	3
-11 to -15	2	2	1	2	1	1	1	3	4	5	2	2	5	2	1	3	4	5	5	2	2	1
-16 to -20	—	—	1	—	—	3	—	2	1	1	4	1	1	2	—	3	1	1	1	4	2	—
-21 to -30	3	3	2	2	2	1	1	2	2	4	—	2	2	1	1	1	1	1	2	3	3	4
-31 and less	—	—	1	2	1	2	4	—	4	—	2	1	1	1	4	2	3	3	3	2	2	7
Average deviation (in percent)	10.2	11.6	12.0	14.2	12.3	15.1	17.8	12.2	22.1	18.2	15.6	13.1	13.2	13.9	21.0	15.2	17.9	18.0	22.1	20.6	35.2	—

that are properly the tasks of the pricing system separately, and develop for each appropriate policies and institutions, on the one hand, to guide the allocative process in agricultural production efficiently by such means as forward pricing and other new institutions to lessen the price uncertainty impinging upon farmers;¹³ and on the other hand, to channel farm products into markets at home and abroad by freeing market prices.

Income. American agriculture, undoubtedly, is subject to many different kinds of instability, yet be it war or peace, business or weather, price or yield, the principal policy objective has been to reduce the instability of income from farming over time.¹⁴ This objective focusing on income has not always been explicit—it nevertheless is the key to most of agricultural policy. It is evident in the political support for the McNary-Haugen proposals, the Federal Farm Board and the array of New Deal farm programs. Production control was advanced in the early 'thirties as necessary to adjust output to depressed and shrunken demand. As the limitations of production control became apparent, the emphasis shifted largely to measures to maintain farm prices—commodity loans for the "basic commodities" dramatized as the Ever-Normal Granary after the drastic droughts of 1934 and 1936; following this came price supports to mobilize agricultural production for war and to protect farmers during the transition. Throughout all of these efforts, like a red thread, runs the objective of stabilizing the income from farming over time.

There is no denying that income from farming has been extraordinarily unstable during the last three and a half decades, more unstable than farm prices. The following data make this quite evident:

1. Comparing agricultural and non-agricultural¹⁵ changes in production, prices and income from the preceding year since World War I

¹³ See D. Gale Johnson, *Forward Prices for Agriculture*, University of Chicago Press, 1947.

¹⁴ In this paper I do not consider several types of income instability of importance to individual farmers, namely that arising from variations in yields, inaccurate price expectations, and long run changes in supply of and demand for farm products.

¹⁵ See also Table XX, page 214, "Cyclical Movements in 'per capita' Farm and Non-Farm Income," in my book *Agriculture in an Unstable Economy*, McGraw-Hill, 1945.

	Agricultural production	Non-agri- cultural prices	Non-agri- cultural income	Agricultural prices	Agri- cultural income	Non-agri- cultural production
Average annual deviation in per- cent	3.9	7.3	11.2	12.3	14.0	15.0

2. Changes in income from preceding year

Changes in percent	Non-agricultural income (1910 to 1944)	Agricultural income excluding govt. payments (1910 to 1945)
+30 and more	—	3
+21 to -30	2	3
+16 to -20	6	2
+11 to -15	4	3
+ 6 to -10	8	7
from 0 to ± 5	8	11
- 6 to -10	2	—
-11 to -15	1	2
-16 to -20	2	1
-21 to -30	1	1
-31 and less	—	2
Average deviation (in percent)	11.2	14.0

3. The income instability for groups of farm products and for major products, again in terms of changes from the preceding year are given in some detail below: (see figures in Table III).

The income problem of course has several different facets. The income in many parts of agriculture is very low, a problem that is closely intertwined with the low efficiency characteristic of so much of agriculture outlined in some detail in my previous paper. The wide inequalities in the personal distribution of income also present basic difficulties because of its bearing upon the widespread sub-standard medical, hospital, housing, and educational facilities and poor diets that prevail. The very uneven distribution of income over time is still another acute problem in agriculture. It is this characteristic of income from farming on which we have been focusing. Our concern, moreover, has been restricted to that over-all instability in farm income originating out of the short and sudden fluctuations of the main economic aggregates attributable to the

TABLE III

(Period covered is from 1910 to 1945 except for cattle and calves, eggs, sheep and lambs, wheat, potatoes and corn, which cover 1910 to 1944)

	Dairy products	Meat animals	Fruits and tree nuts	All commodities	All crops	Livestock and livestock products	Cattle and calves	Eggs	Hogs	Poultry and eggs	Food grains	Cotton	Tobacco	Sheep and lambs	Feed crops	Wheat	Oil bearing crops	Potatoes	Corn
Changes in income (in percent)																			
+31 and more	1	5	4	3	3	3	4	5	8	5	7	7	10	2	6	8	9	11	7
+21 to +30	5	2	3	3	6	3	2	1	1	1	2	4	1	4	1	3	2	3	7
+16 to +20	1	4	2	3	2	3	3	2	2	2	2	1	1	—	1	1	2	—	2
+11 to +15	4	1	4	3	—	1	6	4	1	3	2	3	4	9	6	2	2	1	2
+6 to +10	5	3	5	7	5	7	3	3	3	6	3	2	—	4	2	2	4	—	2
from 0 to ± 5	14	13	11	11	11	11	9	9	9	9	8	8	7	7	7	6	5	3	3
-6 to -10	1	2	2	—	1	2	2	6	4	5	3	1	6	1	3	3	3	2	3
-11 to -15	—	—	—	2	2	1	—	—	2	—	2	—	2	1	3	2	2	2	1
-16 to -20	1	1	1	1	1	1	1	1	1	1	—	1	—	2	1	1	3	3	3
-21 to -30	2	2	3	1	2	2	3	2	1	2	2	2	2	3	2	2	2	5	2
-31 and less	—	2	—	2	2	1	1	1	3	1	4	6	2	1	2	4	2	4	4
Average deviation (in percent)	11.0	15.4	14.2	14.0	14.8	13.3	15.2	15.7	19.1	14.7	19.7	23.1	21.6	15.1	18.7	23.7	26.1	35.5	27.5

unstable performance of the non-agricultural sector of the economy, that is, the more violent swings caused by certain business cycles and by wars.

At this point we shall pull together the threads and indicate briefly in closing the frame of reference and the working hypotheses that appear to us to have promise in analyzing the instability of farm income over time.

1. Lessening the instability of farm income has become a basic policy objective in the United States. This objective has significance and merit on social, political and economic grounds.
2. To achieve this desired stability in farm income the government should not undertake programs that make agricultural production unstable.¹⁶ Production control is not an appropriate means for counteracting the adverse income effects of business depressions and of wars and the aftermath of wars on agriculture.
3. Nor should farm prices be maintained at a particular level in the market place in order to stabilize farm income over time. Price maintenance programs of this type are not appropriate means for counteracting wide swings in aggregate demand caused by unstable conditions in the non-agricultural sectors of the economy.
4. Income stabilizing programs are too heavy a burden for the pricing system to bear if it is to function efficiently in guiding agricultural production and in channeling farm products to consumers.
5. To lessen the instability of farm income and to do it in ways that will not burden the pricing system, it will be necessary to find ways and means for transferring income to farmers during periods when aggregate demand becomes depressed.
6. These income transfers should meet the following conditions: (1) they should be strictly countercyclical in design, (2) they should not induce production decisions in agriculture inconsistent with long run requirements, and (3) they should not clog the channels of trade.

¹⁶ Production adjustments, however, are required on efficiency grounds, and these adjustments call for certain public policies and action. Measures to aid under-employed persons in agriculture to transfer to other occupations, to lessen capital rationing and to reduce soil losses are of this type.

TECHNOLOGICAL ADVANCE AND THE STRUCTURE OF AMERICAN AGRICULTURE

JOHN C. ELLICKSON AND JOHN M. BREWSTER

*Bureau of Agricultural Economics**

AMERICAN agriculture has grown in two main ways. The first was primarily settlement—the expansion of farmers into new areas of a wild continent. The second is technological advance—the creation of more fruitful ways of making the means of life.

The settlement form of growth was by far the more important until the close of the nineteenth century. From 1880 to 1900 American agriculture turned out a 25-percent larger volume of production through technological advance as reflected in production per worker. But it brought forth a 34-percent output expansion through the settlement of some 303 million new acres (including 116 million crop acres) on the part of 2.3 million new farm workers.¹ Except for the Plains and the West, settlement virtually ceased to be a form of agricultural growth after 1900, especially after 1920. Yet, in terms of food and fibre output for human use, agriculture grew faster than ever, expanding about 50 percent in the last quarter century.

As a mode of agricultural growth, then, the settlement era is practically dead. Yet it is very much alive in terms of the prevailing structure of our national farm plant and our traditional aims of life. For our present pattern of farms which was born of the settlement era, as well as many ideals and values that were first wrought out and stabilized in our national character by the older disciplines of that period, are now being gnawed at by the very technological advances through which farm people today are so greatly increasing their productive power and removing the drudgery of their toil. The three-century conquest of the wild expanse from the Atlantic to the Pacific outwardly took the form, for the most part, of owner-operated family farms within reach of any pair of willing hands. The backfire of this method of conquest into the imagination of the people became the ideal and ambition for an ever-expanding

* While each has exercised a critical check on the other's work, the senior author is mainly responsible for the technical information and the junior author is chiefly responsible for the formulation of the argument and writing.

¹ John M. Brewster, "Farm Technological Advance and Total Population Growth." This JOURNAL, Aug. 1945, pp. 513-519.

agriculture of self-bossed workmen—masterless men in the truest sense of the word.

But with this conquest now well over, contemporary agriculture grows almost entirely through technological advance that day by day whittles down the number of farms, seals off the doors of farm employment opportunities, and makes it harder and harder for self-bossed farmers as a group to keep their footing on the soil. It is little wonder, therefore, that farm people are even more concerned with the technology of the scientist and engineer than with the business cycle of the economist. For the prospective downswing of exchange values that forebodes ill times ahead is largely counter-balanced by faith in a remoter upswing, whereas the pressure of technological advance upon the older organization of agriculture is unrelenting.

Accordingly, in line with this mingled concern of farm people over the impact of new mechanisms on both the fruitfulness of their hands and the heritage of their past, this paper (so far as available information permits) seeks light on the rates of farm technological advance in the Nation and various regions since 1900 and the effect of such change on the number and proportion of units in significant groups of farms, with special emphasis on the outlook for family farms.

I

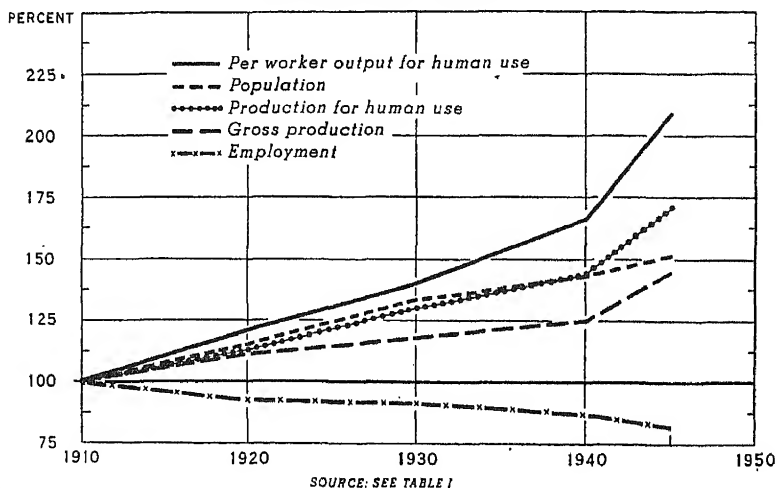
Although farm technological advance may be measured by the changing productivity of any given resource, its reflection in output per worker is most suitable for the task at hand. For it is in these terms that such advance is reshaping the number of persons needed in agriculture and the number and proportion of farms in significant size groups. It is also mainly in these terms that the compatibility of family farming as well as owner-operatorship with technological advance must be appraised.

In the process of shifting farm power from animal to mechanical energy, technology increases farm worker output for human use at a faster rate than his gross or total output.² Besides increasing

² For the years 1919–1945, productivity data used in this paper are the two series prepared by Glen T. Barton and Martin R. Cooper, *Farm Production in War and Peace*. The first series is there called *Gross Farm Production*, and the second *Farm Output*. "Farm Output" is that portion of gross farm production which is available for human use while "Gross Farm Production" includes all farm production for both human use and for the production and maintenance of farm workstock. Since

total output per worker, this shift from animals to machines further increases the food and fibre output that is available for human use by reducing the amount of farm output required for workstock. For example, farm technological advance (as reflected in total production per worker) and total population growth proceeded at about the same rate from 1910 until 1940 (approximately one percent per year). After 1920, when the tractor began crowding out the

FARM EMPLOYMENT, GROSS FARM PRODUCTION, FARM PRODUCTION FOR HUMAN USE, PER FARM WORKER OUTPUT FOR HUMAN USE, AND TOTAL POPULATION, UNITED STATES, 1910-45
INDEX NUMBERS (1910=100)



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(FIGURE I)

horse, this advance, as reflected in per worker output for human use, began outracing total population growth. From 1930 to 1940 such advance became more than 2.5 times faster than population growth.³ But more important now and for the years ahead is the

there are thus two measures of farm production, there are likewise two measures of farm worker productivity. Both measures are essential to an understanding of farm technology.

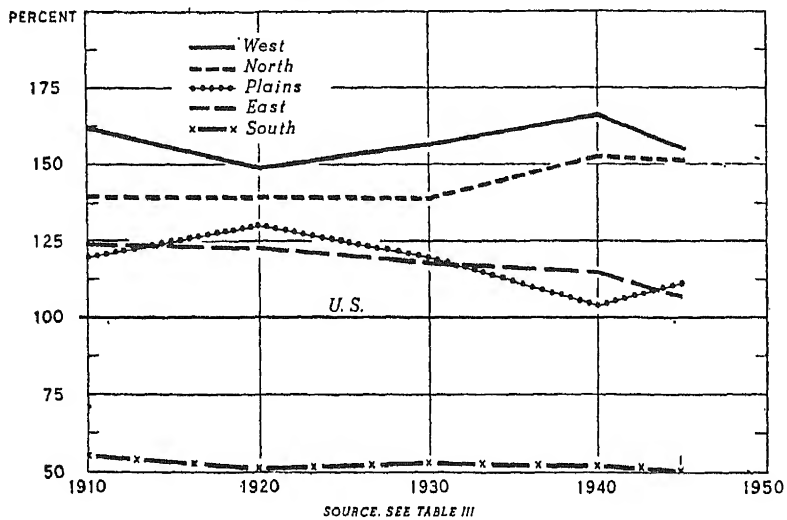
Each of the Barton-Cooper series was extended by the authors back to 1910 through the use of Strauss and Bean's "Gross Farm Income and Indices in the United States, 1869 to 1937"—See Footnote 3, Table I for further details.

³ This disparity of rates is considerably greater if the Census farm labor force series is used instead of the BAE series. The BAE series is used in this paper because

fact that since 1940 technological advance has exceeded population growth in terms of per worker output for human use as well as gross output.

In other words, the outracing of population growth by output for human use per farm worker has almost ceased to be the result of a temporary shift in the form of farm power and has become the function of more permanent characteristics of scientific agriculture,

COMPARATIVE LEVELS OF PER FARM WORKER OUTPUT FOR
HUMAN USE, UNITED STATES AND REGIONS, 1910-45
INDEX NUMBERS (U. S. = 100)



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(FIGURE II)

such as better plants and animals, disease and pest control, wider use of fertilizer, soil care, and so on. From 1920 to 1930, the substitution of machine for animal power was responsible for one-half of the increase of farm output for human use, one-third during the next decade, and only one-tenth from 1940 to 1945. In 1920

it permits, whereas the Census series does not permit, regional measures of farm technological advance. On the other hand; the Census series does permit a measure of such advance on a national basis over a much longer period of time. See footnote 1, "Farm Technological Advance and Total Population Growth."

horses and mules used up 21 percent of total farm production, but only 7 percent by 1945. Should this rate continue, the conversion of farm production for workstock to food and fibre for human use would be substantially completed about 1955.

In short, although the substitution of mechanical power is still of some importance in increasing per worker output for human use, the outracing of population growth by farm technological advance as reflected in such output now comes chiefly from other sources.

TABLE I. FARM EMPLOYMENT, GROSS FARM PRODUCTION AND PRODUCTION FOR HUMAN USE, PRODUCTIVITY PER FARM WORKER, AND TOTAL POPULATION, FOR THE UNITED STATES, 1910 TO 1945
(1910=100 for all indexes)

Year ¹	Farm employment ²	Agricultural production ³				Productivity per worker		Total population ⁵	
		Gross	For human use ⁴			Gross	For human use		
	Number Index	Million dollars Index	Million dollars Index			Index	Index	Number Index	
1910	12,132 100	7,805 100	6,072 100			100	100	91,972 100	
1920	11,293 93	8,679 111	6,860 113			120	121	105,711 115	
1930	11,207 92	9,171 118	7,871 130			127	140	122,775 133	
1940	10,562 87	9,752 125	8,748 144			144	166	131,669 143	
1945	9,964 82	11,230 144	10,396 171			174	209	139,223 151	

¹ Employment and production entries are three year averages centered on year indicated. Production data for 1945 are preliminary.

² BAE series, annual average farm employment.

³ Data for years 1919 to 1945 obtained from Glen T. Barton and Martin R. Cooper, *Farm Production in War and Peace*, U. S. Department of Agriculture, Bureau of Agricultural Economics, Washington, D. C., December 1945, Table 2, p. 12 and Table 18, p. 74; preliminary data for 1946 from the same authors. Estimate for 1909 to 1911 derived from Frederick Strauss and Louis H. Bean, *Gross Farm Income and Indices of Farm Production and Prices in the United States, 1869 to 1937*, U. S. Department of Agriculture, Washington, D. C., December 1940, Table 61, p. 126, Ideal Index. Values expressed in 1935-39 dollars.

⁴ That portion of gross production available for human use.

⁵ U. S. Census of Population. Estimate for 1945 from Series P. 47, No. 1.

There is, therefore, no tangible reason why agriculture should not continue for the visible future as an expanding industry in terms of food and fibre output but a contracting industry in terms of the number of farms and farm workers required to feed and clothe the Nation.

Certain differences may now be noted in the comparative levels and rates of farm technological advance in the broad economic

regions.⁴ The West started out with the highest output per worker in 1910 and has consistently kept in first place, but the North (in second place) is now a strong competitor. While production per worker has increased substantially in the East, the rate of advance has been less than the national average. In 1910 the output per Eastern farm worker was 24 percent above that of the average, whereas in 1945 it was only 7 percent greater. The Plains are somewhat erratic but consistently above the U. S. average.

The South started out in the lowest position in 1910 and has fallen slightly further behind since then. It is the only region where farm worker productivity is less than the national average. The output of one Northern or Western worker is roughly equivalent to that of three Southern workers.

TABLE II. NUMBER OF TRACTORS PER 1,000 FARM WORKERS
UNITED STATES AND REGIONS, 1920 TO 1945

Year	U. S. Number	East Number	North Number	South Number	Plains Number	West Number
1920	22	17	37	4	37	40
1925	44	59	82	11	57	61
1930	82	105	152	16	123	107
1940	148	171	290	26	231	169
1945	245	301	460	61	353	265

Source: U. S. Census of Agriculture, and BAE series on annual average farm employment.

In mechanization, the South is about where the non-South was in 1925. By 1945 the rest of the country had 370 tractors per 1,000 farm workers as compared with 68 in 1925. The South had only 61 by 1945. Furthermore, the rest of the country is still mechanizing at a faster rate, adding 135 tractors per 1,000 farm workers from 1940 to 1945, while the South added only 35.

⁴ The regions used in this paper are as follows:

West: The 11 Western states

Plains: The tier of 6 states from North Dakota to Texas

North: Minnesota, Iowa, Missouri, Wisconsin, Illinois, Michigan, Indiana, and Ohio

East: Maryland, Delaware, and the 9 North Atlantic states

South: The remaining 12 states

These regions require a minimum change from the Census divisions and the type-of-farming regions for which farm employment is reported by the BAE. They appear to be the smallest number of regions that include all of the states and yet segregate the country into not only symmetrical but also relatively homogeneous areas with respect to historical change, such as the close of settlement period, average acres per farm, etc.

TABLE III. FARM EMPLOYMENT, GROSS FARM PRODUCTION, FARM PRODUCTION FOR HUMAN USE, AND PER FARM WORKER OUTPUT FOR HUMAN USE, UNITED STATES AND REGIONS, 1910 TO 1945

Item and year ¹	U. S.	East	North	South	Plains	West
	000	000	000	000	000	000
A. Farm employment ²						
1910	12,132	1,288	2,959	5,182	1,965	739
1920	11,293	1,076	2,709	4,741	1,846	922
1930	11,207	1,002	2,572	4,623	1,966	1,024
1940	10,562	979	2,446	4,383	1,761	993
1945	9,964	944	2,312	4,042	1,654	1,011
B. Gross production ³	Million dollars	Million dollars	Million dollars	Million dollars	Million dollars	Million dollars
1910	7,805	1,023	2,681	1,852	1,515	734
1920	8,679	1,005	2,898	1,947	1,823	1,004
1930	9,171	962	2,932	2,094	1,936	1,243
1940	9,752	1,036	3,392	2,236	1,662	1,442
1945	11,230	1,109	3,786	2,506	2,152	1,697
C. Production for human use						
1910	6,072	800	2,055	1,437	1,180	600
1920	6,860	801	2,290	1,477	1,457	835
1930	7,871	832	2,508	1,720	1,675	1,129
1940	8,748	934	3,070	1,883	1,516	1,363
1945	10,396	1,052	3,638	2,168	1,931	1,630
D. Output per farm worker for human use						
1. Index: 1910=100 for each series						
1910	100	100	100	100	100	100
1920	121	120	122	113	131	112
1930	140	134	140	134	140	136
1940	166	154	181	155	143	169
1945	209	179	227	194	194	199
2. Index: U.S.=100 for each period						
1910	100	124	139	55	120	162
1920	100	123	139	51	130	149
1930	100	118	139	53	120	157
1940	100	115	152	52	104	166
1945	100	107	151	51	112	155

¹ Three year averages centered on year indicated. Region totals do not add to U. S. because of rounding.

² Derived from BAE series on annual average farm employment.

³ Derived from *Farm Production in War and Peace and Gross Farm Income and Indices of Farm Production and Prices in the United States*, *ibid.* Production measured by 1935-39 average dollars. Data for 1945 are preliminary.

There are some grounds, however, for anticipating substantial improvement of the relative position of Southern agriculture. For

while the non-South is still adding tractors at a faster rate, the South has started to catch up. From 1920 to 1930 the rate of mechanization, as measured by the use of tractors in the non-South was 12 times faster than in the South, 4.7 times faster from 1930 to 1940, but only 4 times faster from 1940 to 1945. Furthermore, the end of substitution of machine for animal power is in sight in the other regions, while this shift is only now getting well under way in the South. In the North there is a tractor for every two workers, but only 1 for every 16 in the South.

There is, consequently, good reason to suppose that in the next few years the South may gain on the rest of the country so far as mechanization is concerned. This will vastly change the structure of Southern agriculture, relieve farm workers of much of their present drudgery, and greatly increase their productive power. But whether it will enable them to reach a technological parity with the rest of the country is a question. For, among other reasons, the fact that non-Southern regions are now so far ahead of the South in the substitution of machines for animal power may enable them to concentrate on other forms of technological advance sufficiently to keep their present advantage, at least for many years.

II

Attention may now be directed to the impact of the comparative rates of technological advance upon the number and proportion of units in significant groups of farms. For this purpose, the tracts whose resources are so small as to produce less than \$400 total value of output (at 1939 prices) are disregarded as a part of the national farm plant and are therefore taken out of the total number of Census farms and farm production. This is done because such tracts are not farms in any farmer's sense of the word although they do meet the Census definition of a farm.⁵ Most of them have no power at all or only one horse or mule, harvest less than 10 acres of cropland and their "operators" are either unable to work or are usually engaged in off-farm work for a livelihood.⁶ And they average

⁵ This definition is currently as follows: "A Farm, for Census purposes, is all the land on which some agricultural operations are performed . . ." and of not " . . . less than 3 acres . . ." or " . . . its agricultural products . . ." are " . . . valued at \$250 or more." See section on "Definitions and Explanations" in any current state or national report by the U. S. Census of Agriculture.

⁶ For other characteristics of these tracts, see *Farm Characteristics by Value of Products*, Technical Monograph, coop. study, U. S. Dept. of Agr. and U. S. Dept. of Commerce, Wash., D. C., 1943.

less than \$200 total output, mostly for home use. In short, these units are neither capable of feeding a family even at subsistence levels from home-grown stuff nor meeting more than a negligible

TABLE IV. NOMINAL FARMS: NUMBER, AVERAGE VALUE OF PRODUCTS, AVERAGE LAND PER FARM, AND PROPORTION OF CENSUS TOTALS, UNITED STATES AND REGIONS, 1900 TO 1945

Item and year	U. S.	East	North	South	Plains	West
	000	000	000	000	000	000
A. Number ¹						
1900	1,889	194	410	990	218	77
1930	2,005	131	341	1,095	307	131
1940	2,095	172	416	1,037	305	164
1945	1,966	226	400	934	248	158
B. Average value of products ²	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1900	220	229	227	223	201	168
1930	209	213	199	221	199	179
1940	202	177	181	220	201	169
1945	191	167	175	206	201	176
C. Average acres ³	Acres	Acres	Acres	Acres	Acres	Acres
1900	73	47	54	56	184	138
1940	72	52	58	48	126	177
D. Percent of total						
1. Number of farms						
1900	32.9	26.5	22.7	47.1	25.6	31.7
1930	31.9	24.4	21.0	44.3	26.6	26.0
1940	34.4	32.2	24.9	44.0	29.9	32.2
1945	33.6	41.2	25.1	40.9	26.4	32.0
2. Value of products						
1900	7.4	5.5	4.4	17.2	4.4	3.0
1930	5.8	3.4	3.1	15.7	3.9	2.1
1940	5.4	3.4	2.8	13.3	4.6	2.3
1945	4.3	4.1	2.5	10.3	3.0	1.8
3. Land in farms						
1900	16.4	12.6	10.4	26.8	15.7	11.3
1940	14.2	17.1	11.1	26.0	11.1	11.3

Source: Derived from U. S. Census of Agriculture.

¹ Farms reporting less than \$400 value of products, not fed to livestock in 1900, and sold, traded or used by farm households 1930 to 1945. Products from green-houses and nurseries reported separately in 1930 have been included in the total.

² All values in 1939 dollars. The price indexes used were: 1899 = 66.7; 1929 = 154; 1939 = 100; 1944 = 205. (From BAE and Strauss and Bean.)

³ For 1900 estimated from U. S. Census of Agriculture, Volume V, Part I, Table 17, pp. 230; for 1940 adjusted from *Characteristics of Farms by Value of Products*, op. cit. Not available for 1930 and 1945.

fraction of essential cash costs for family living and farm operations. Since these are the absolute minimum requirements which a tract must fulfill in order to function as a farm in any farmer's use of the

term, these units are "farms" in name only and therefore may be disregarded as a part of the actual structure of American agriculture.

Since 1900 the number of these nominal farms has hovered around 2 million. While they constitute a relatively stable proportion (about one-third) of all Census farms, they account for a negligible and steadily declining proportion of total farm production and marketings.

Excluding nominal farms from the Census total, there remain for the period 1900-45 about 4 million units which for the most part meet the everyday meaning of a farm. In practical (functional) terms, these units fall into three significant groups—family farms, larger than family farms, and inadequate farms.

As stated elsewhere: "*Family farms* are all units (1) whose land and capital resources are at least (a) large enough to yield sufficient farm earnings to enable the farmer and the farm to continue indefinitely as a going concern through meeting all farm and family living expenditures but (b) *small enough* to permit labor, technological management and business (entrepreneurship) functions being performed mainly by family members (i.e. at least 50 percent of the annual labor input must be provided by the family) and (2) whose operating control arrangements actually invest the farm operating family with responsibility for running the farm. *Larger-than-family-farms* are units whose land and capital resources are so large as to involve an annual labor input at least twice as large as the family labor force. *Inadequate farms* are all units (1) whose land and capital resources are so limited that farm earnings are insufficient to enable the unit to continue indefinitely as a going concern, or (2) whose operational control arrangements are such as to divest operating farmers of managerial control over farm operations."⁷

In terms of total value of output at 1939 prices, the limited information now available indicates that for the country and farms as a whole, under 1939 conditions, the lower limit of family farms (and the upper limit of inadequate farms) was about \$1,500.⁸ The upper limit of family farms (and the lower limit of larger-than-family farms) was roughly \$10,000.^{9,10}

⁷ John M. Brewster and Howard L. Parsons, "Can Prices Allocate Resources in American Agriculture?" this JOURNAL, Nov. 1946, pp. 948-49. Footnotes on these pages give further justification of these definitions.

⁸ *The Farm Housing Problem*, U. S. Department of Agriculture, U. S. Congress, 79th Session, Senate, Special Committee on Post-War Economic Policy and Planning, Hearings on Housing, Part 12, pp. 1897-1901.

⁹ *Farm Characteristics by Value of Products*, op. cit., p. 102, table 1, and p. 135, table 6. On farms reporting \$10,000 and over value of product, hired labor out-numbers family nearly 5 to 1, but on more than two-fifths of these farms there were

TABLE V. NUMBER OF FARMS (EXCLUDING NOMINAL) AND PERCENT OF TOTAL NUMBER BY CLASSES, UNITED STATES AND REGIONS, 1900 TO 1945

Item and year	U. S.	East	North	South	Plains	West
	000	000	000	000	000	000
A. Total farms						
1900	3,848	539	1,394	1,114	635	166
1930	4,284	405	1,282	1,376	849	372
1940	4,002	362	1,256	1,321	716	346
1945	3,893	322	1,195	1,347	693	336
B. Percent of all farms						
1. Inadequate ¹						
1900	74.5	70.1	67.5	89.8	71.0	57.2
1930	69.3	56.3	60.7	89.9	63.7	49.7
1940	65.8	51.1	53.0	85.5	67.5	48.8
1945	58.8	46.3	46.3	82.0	50.5	39.3
2. Family ²						
1900	25.0	29.5	32.1	10.0	28.0	38.6
1930	29.6	42.2	38.6	9.7	35.0	46.0
1940	32.8	46.7	45.9	14.0	31.1	45.7
1945	39.2	50.9	52.3	17.4	47.3	52.1
3. Larger than family ³						
1900	0.6	0.4	0.3	0.2	0.9	4.0
1930	1.1	1.5	0.6	0.4	1.2	4.4
1940	1.4	2.2	1.1	0.5	1.4	5.5
1945	2.0	2.8	1.4	0.7	2.2	8.6

Source: Derived from U. S. Census of Agriculture. See footnotes 1 and 2, Table IV.

¹ Farms reporting value of products from \$400 to \$1,499.

² Farms reporting value of products from \$1,500 to \$9,999.

³ Farms reporting value of products of \$10,000 and over.

Because of differences in technological levels, customary standards of living, price levels and price relationships, it is recognized that the value of product limits of these social and economic groups of farms vary through time and geographic areas. Nevertheless, the limits just mentioned may serve as a basis for making a first approximation of the change in the number and proportion of units

no hired workers or only one. Only 10 percent of these farms account for over 60 percent of all hired labor in this group. All available evidence indicates a similarly skewed distribution of hired workers on the next value of product group, from \$6,000 to \$9,999. Therefore the number of larger-than-family farms in this group, as measured by number of hired workers, is roughly offset by the number of family farms in the \$10,000 and over value of product group, so that \$10,000 is the best approximation of the breaking point.

¹⁰ As indicated in the definition above, family farms cannot be described by size limits alone since they also involve managerial control over farm production processes by the operator. However, available information does not permit correction for the bearing of this factor on the number of farms within these size limits.

in these significant farm classes since 1900 in the broad economic regions of American agriculture.

In these terms two major facts stand out—(1) the growth in the number of family farms and of larger farms, and (2) a marked decline in the number of inadequate farms, so much so as to result in a diminishing total number of farms since 1930. In general, these trends are more pronounced in regions where technological advance is most rapid.

For every 100 family farms in 1900 there were 159 in 1945, increasing from fewer than 1 million to more than 1.5 million in the country as a whole. Nearly 40 percent of this increase took place during the 1940–45 war period, 7 percent in the depression thirties, and the remainder during the preceding 30 years. In the North, the East, and the Plains, the ratio of family farms to all farms increased approximately 20 percent. This increase was smaller (13 percent) in the West where technological advance has been about as great as in the North but where family units have always been a less prominent feature of the traditional pattern of agriculture. The smallest increase (7 percent) has been in the South where both the rate of technological advance has been slowest and the pattern of family units has been a less important characteristic of agriculture.

In all regions except the West and East, family units have been increasing their segment of total farm output more rapidly than larger farms. In the North, their share of agricultural production in 1945 was 14 percent larger than in 1900, while the share of larger units was only 8 percent greater. The same principle holds for the Plains and the South. In the East, family farms have consistently increased their proportion of total output less than the larger units. And in the West, the share of output by family units is slowly declining while that of larger units increased over 6 percent in the thirties and nearly 10 percent from 1940 to 1945.

While the numbers of family and larger-than-family farms are increasing, inadequate farms are rapidly decreasing. In 1900 inadequate units constituted three-fourths of all farms and accounted for over 40 percent of all agricultural production, but by 1945 they made up only 59 percent of all farms and accounted for only 22 percent of farm production. Since 1930 this group of units has decreased by almost 700,000 (from nearly 3 million to nearly 2.3 million) while family units increased by 257,000. For the past 15 years this decrease of inadequate units at a faster rate than the

gain in family units has resulted in a diminishing total number of farms. The extent of the decline in inadequate farms is roughly similar (from 18 to 24 percent) in all regions except the South.

TABLE VI. TOTAL VALUE OF PRODUCTS (EXCLUDING NOMINAL FARMS) AND PROPORTION OF PRODUCTION FROM EACH CLASS OF FARM, UNITED STATES AND REGIONS, 1900 TO 1945

Item and year	U. S.	East	North	South	Plains	West
	Million dollars	Million dollars	Million dollars	Million dollars	Million dollars	Million dollars
A. Total production						
1900	5,198	762	2,005	1,061	950	420
1930	6,822	806	2,134	1,298	1,504	1,081
1940	7,391	875	2,576	1,488	1,288	1,163
1945	8,458	875	2,734	1,676	1,643	1,528
B. Percent of production from						
1. Inadequate farms						
1900	44	41	40	68	39	18
1930	35	24	32	68	30	15
1940	29	18	23	55	31	12
1945	22	14	18	51	18	7
2. Family farms						
1900	48	54	57	28	47	48
1930	52	62	61	27	55	52
1940	53	62	66	34	50	47
1945	57	62	71	37	63	43
3. Larger than family farms						
1900	8	5	3	4	14	34
1930	13	14	7	5	14	33
1940	18	20	11	11	19	41
1945	21	23	11	12	19	50

Source: Derived from U. S. Census of Agriculture. All values in 1939 dollars. See footnotes 1 and 2, Table IV.

In the East the disappearance of inadequate units as a rule has not taken the form of a consolidation into larger farms but of abandonment of land for agricultural purposes. For 36 million acres were in inadequate units in 1900 as against 16 million in 1940, while there was no net change in the acreage of family and larger-than-family farms.¹¹ As a consequence, the East has undergone a greater decline in total number of farms than any other region.

Because of the relatively slow rate of technological change in the South, the decline of inadequate units has been slower there than elsewhere. Until 1930 there was practically no change.

¹¹ From the source indicated in Footnote 3 of Table IV.

Since then these units have been disappearing at the rate of 9,000 per year as compared with 36,000 in the rest of the country. As a consequence, the South, which had only two-fifths of all inadequate farms in 1930, had nearly half of them by 1945. Should the South approach any substantial degree of technological parity with the rest of the country, a wholesale disappearance of these inadequate units would likely result. By the rough measures used in this paper, more than 80 percent of all farms in the South fall in the inadequate class as compared with less than 50 percent in the rest of the country.

III

In terms of size and operational control of farms, the chief outcome of the settlement era was predominantly a pattern of family farms. At the turn of the century, the primary make-up of the agricultural sector of the economy was a system of "domestic" or family industries just as was the make-up of the industrial sector at a somewhat earlier date, say 1850. Within the last half of the nineteenth century, mechanization in industry practically wiped out the family production unit as a representative institution in the industrial segment of the economy. In recent years the substitution of mechanical for animal and human energy has been going on in agriculture as in industry in an earlier period. Since mechanization is mechanization, whether in farming or industry, the man who thinks on the run quite naturally concludes that farm technological advance is bound to wipe out the "domestic system" in agriculture just as it did in industry.

Plausible, however, as is this ready size-up of the matter, it rests on at least three fundamental confusions—an assumed identity (1) of the mechanical form of farm and industrial technologies at the expense of their differences, (2) of family farms with inadequate units rather than with going concerns, and (3) of farmer operational control over farm production with an owner-operator-ship form of land tenure.

The force of each of these confusions arises from the simplicity of its source but disappears upon closer scrutiny of the facts at hand.

Advance in industrial technology increasingly separates the great multitude of operations involved in a finished product into different spaces so as to perform them simultaneously and continu-

ously. For this reason, such advance so increases the number of production steps that must be done at the same time that it necessarily substitutes new units of production, whose operation may require thousands of workmen under an elaborate hierarchy of bosses, for the older system of family industries. But, as a rule, farm technological advance does not multiply the number of steps that can and must be done at the same time. For the number of simultaneous operations in agriculture varies little with either the size of farm or the "state of the industrial arts." It makes little difference, for example, whether a corn-hog farm covers the whole State of Iowa or only 160 acres, or whether farming is done with oxen, flails, and sickles or with high-powered tractors and combines; the number of production steps that can be done at the same time on such farms remains substantially unchanged.¹² The same principle applies to almost all types of farming.

In short, modern industrial and farm technologies rest on a different division of labor principle. Modern industrial technology involves a spatial division of labor because it mainly locates production steps at different points in space so as to do them all at the same time. Farm technological advance, on the other hand, runs in terms of a temporal division of labor because it continues to leave production steps mainly located at different points in time, in line with the requirements of the growth cycle of plants and animals and of climatic conditions. As a consequence, the work and management requirements of a well equipped farm as nearly coincide today with the number of persons and working abilities of an ordinary family as it did in the days of Jefferson.

Through an oversight of this fundamental difference in the mechanical form of farm and industrial technology, the erroneous conclusion arises that advance in farm technology must crowd family units of production to the wall in the same way that industrial technology has done so.

A second confusion arises from an identification of the fundamental nature of family farms with inadequate units. This is a plausible assumption because both are usually occupied by families. This occupancy is then easily taken to be the differential trait

¹² Farm technological advance actually reduces the number of simultaneous operations through (1) reducing the number of enterprises in a given farming area, and (2) transferring such processing and other operations as lend themselves to the factory system from agriculture to industry. See footnote 1, *Farm Technological Advance and Total Population Growth*, p. 524.

of family farms. Through this definition by easy imagery the conclusion is inescapable that family farms are on the way out. For this concept includes many units that are so inadequate in working resources as to be incapable of making a go of it from farm earnings alone. These units are obviously incompatible with modern technology which is ever raising the minimum land and capital requirements further beyond their reach. They hang on far past their time, either through depletion of soil fertility and capital resources, or because their operators have tightened their belts below acceptable levels of living, or have access to outside income, such as off-farm work, pensions or retirement savings. But even so, these units are disappearing each year by the thousands.

Having thus mistakenly identified family farms with inadequate units instead of with going concerns, it then follows that "family" farms will soon cease to be a representative institution of American agriculture, especially so when this identification is further reenforced by a confusion of the mechanical form of industrial and farm technology and also a confusion of operator control over farm production processes with an owner-operatorship form of land tenure. On the basis of these mistaken premises, the only logical conclusion that may be taken toward the future of family farms is that they are but a lingering vestige of the settlement era that is being forced to the wall by modern technological advance.

But this mode of thought collapses as soon as the essential traits of family farms are viewed in the light of the farming process and its units as enduring affairs. For in these terms the essence of family farms ceases to be the occupancy of pieces of ground by families and becomes such blocks of farm real estate and equipment, under family operator control, as are at least productive enough to sustain both the farm and the family from farm earnings alone.

In this light, the impact of technology upon the traditional structure of our agriculture differs radically from what is otherwise assumed to be the case. Instead of wiping out a system of family farms, such advance raises the minimum level of capital and land requirements per farm unit. For this reason, farm technological advance indeed requires the disappearance of an increasing number of inadequate units, but it does not require any displacement of the historical pattern of family farms as such. Instead of closing the door to the growth of our traditional system of family farms, technology has simply shifted the source of such growth from the

wilderness of the settlement era to the inadequate units of our contemporary agriculture. In this way the passing of the frontier transformed the source of family farm expansion from a struggle of man with nature in the raw into a competition of farm operators for each other's resources. Today's dynamics definitely favor the family and larger-than-family units. On many counts the older impersonal struggle against nature may be preferred to the modern competitive struggle of farmer against farmer, but this is no ground for concluding that farm technological advance requires any disappearance of the system of family farms.

This formulation of the adjustment drift of the social and economic units of American agriculture appears to be borne out not only by information previously submitted on change in the number and proportion of units in significant groups of farms but also by the ratio of hired to "unpaid" family labor. If farm technological advance were incompatible with the growth of family farms, this ratio would increase in agriculture as it has in industry. But this is not the case. For the country as a whole from 1925 to 1945 the proportion of hired labor fell from 25.5 to 21.7 percent. Moreover, during the same period in the North, where family units are most dominant and their growth most pronounced, and where technological advance (as reflected in per worker output for human use) has been the fastest, the proportion fell from 27.4 to 16.1 percent. To a lesser degree the same principle applies to the Plains. In the West and the East, where larger-than-family units have been growing somewhat faster than family units, the proportion of hired labor has remained about constant. This is presumably because the increased number of hired workers on larger-than-family farms has been offset by a corresponding decrease in hired workers on family and inadequate units.

Finally, the idea of a necessary displacement of family farms by larger units arises from the confusion of an owner-operatorship form of land tenure with primary operator control over farm production processes.

As previously indicated, family units of production, whether in industry or agriculture, are characterized by managerial control over their operation by the families who also supply most of the labor requirements. Historically, the vehicle of such control has been an owner-operatorship form of land tenure so that to this day the ready image of an "independent" operator is an owner-work-

TABLE VII. FARM EMPLOYMENT: ANNUAL AVERAGE NUMBER OF TOTAL, FAMILY AND HIRED WORKERS, AND HIRED AS A PERCENT OF ALL WORKERS, UNITED STATES AND REGIONS, 1925 TO 1945

Item and year	U. S.	East	North	South	Plains	West
	000	000	000	000	000	000
A. Total workers						
1925	11,447	1,057	2,711	4,723	1,969	987
1930	11,207	1,002	2,572	4,623	1,986	1,024
1935	11,010	977	2,521	4,699	1,823	990
1940	10,562	979	2,446	4,383	1,761	993
1945	9,964	944	2,312	4,042	1,654	1,011
B. Family workers						
1925	8,524	698	1,968	3,785	1,501	572
1930	8,364	685	1,898	3,672	1,515	594
1935	8,565	666	1,980	3,820	1,468	631
1940	7,998	644	1,923	3,475	1,359	592
1945	7,800	638	1,939	3,312	1,311	600
C. Hired workers						
1925	2,923	359	743	938	468	415
1930	2,843	317	674	951	471	430
1935	2,445	311	541	879	355	359
1940	2,564	335	518	908	402	401
1945	2,164	306	374	730	343	411
D. Hired as percent of total						
1925	25.5	34.0	27.4	19.9	23.8	42.0
1930	25.4	31.6	26.2	20.6	23.7	42.0
1935	22.2	31.8	21.4	18.7	19.5	36.3
1940	24.3	34.3	21.2	20.7	22.8	40.4
1945	21.7	32.5	16.1	18.1	20.7	40.7

Source: Derived from BAE series, three year averages centered on year indicated.

man. Accordingly it is natural to assume that managerial control over farm processes is so interlocked with this form of land tenure that any decline or upturn in owner operated farms is necessarily a decline or upturn in family farms.

It may be observed, however, that this association, whatever its historical grounds, is not a necessary relationship and that it is now dissolving.

There are, for example, instances of full owner operators ceasing to be family farmers because they have so bargained away their control over farm operations that they have become virtually hired laborers. Such instances are found most frequently in cases of extremely perishable crops, where "timing" is of the essence and where alternative market outlets are not available. But more important is the fact that an increasing number of operators are

ceasing to be owners, without at the same time losing control over their farm production processes. While landlords have the legal right to set forth detailed operating controls as a part of the lease, the fact remains that ordinarily they do not exercise this right so that the tenant often remains as free to run the farm in line with his best judgment as if he were an owner. Again, landlords often require certain general operating practices (such as a minimum proportion of the land in cash crops), but, in many cases, these conditions are the same as the tenant would impose upon himself if he were an owner. Under this circumstance, instead of being a form of external control over the operator's judgment by an outsider, such leases are simply a formal expression of the way in which both the tenant and the landlord would operate the farm if each were the only interested party.

To be sure, there are cases in which operator control is often over-run by bossy landlords. The question arises, however, whether such interference is not most frequently generated by inadequate units, which are unable to provide incentives and an acceptable living for their operating families and also meet normal landlord costs and expectations. Under this pressure, the landlord feels impelled to take advantage of his ownership prerogatives by interfering with the managerial discretion of the tenant, while the tenant feels impelled to improve his livelihood through exploitative farm practices. To the extent that this condition prevails, the way toward a more widespread degree of operator independence would seem to lie in some method of converting inadequate units into going concern family farms under either a tenancy or operator-ownership form of land tenure.

IV

This discussion of change in the social and economic units in American agriculture, under the impact of technological advance, is necessarily but a first approximation. Available information does not permit a more exact and extensive treatment. If, however, the approach of this analysis is reasonably correct, it suggests certain lines of research as a basis for a more intelligent grasp and guidance of changes in the pattern of our agriculture.

First, as a preliminary, research should lead to a more adequate description of the upper limit of nominal farms (the lower limit of inadequate farms) so that nominal farms may be more effectively

eliminated from farm statistics. While these tracts should be disregarded as a part of the national farm plant because their contribution to total farm output or to family livelihood is negligible, it does not follow that the people associated with these tracts should likewise be "forgotten." In fact, much information is needed as to their problems, incomes, and levels of living. The surest way to "forget" them is to continue to consider their tracts as farms, because no farm program can reach these folks and at the same time no other agencies have any responsibility for their interest as long as they go under the heading of "farmers." Further, research might show that the so-called poverty group in our agriculture is not, by and large, the people on these nominal units but the operators of inadequate farms without substantial supplementary income.

Second, having cleared farm statistics of nominal farms, research should proceed with the determination of (1) the lower limits of family farms, considered as going concerns in terms of farm earnings, and (2) the upper limit of such farms in terms of farm labor requirements.¹³ These limits will give the significant size groups of the social and economic units that make up the structure of American agriculture. The chief requirement of this line of research lies in making due allowance for regional variations of these limits with respect to major types of farming, tenure, technological change, price levels, price relationships, and accepted living levels, while at the same time maintaining sufficient uniformity of method to permit national summaries.

The third line of research requires a breakdown of farm family total income into its farm and off-farm components. This is especially important, not only as a means of measuring the lower limit of family farms, but also as a method of determining the extent to which the total income of families on inadequate units from all sources is enough for at least some savings after meeting living expenditures. Otherwise, no reliable information is at hand on the extent to which this great bulk of American farm families exist under impoverishing conditions at any given time.

¹³ Adequate determination and description of these limits will require more detailed information on nonfarm income, farm and family living expenditures, and farm labor requirements than is available from Census schedules. But, once these limits are established, forthcoming tabulations of the Master Sample from the 1945 Census of Agriculture will provide a point of departure for estimating the number and characteristics of farms by these social and economic classes of farms. From available Census schedules it is possible to extend such an analysis back to 1925.

The formulation of more realistic agricultural policies and programs is dependent upon improvement in at least two fundamental types of information that are now grossly inadequate. One is the total number of actual farms, because only such units can be reached by farm programs. This number of farms will also provide a sounder base for informing the public at large on the size and changing nature of American agriculture. Second, since farm problems (such as prices, incomes, soil conservation, housing, etc.) vary with the fundamentally different social and economic classes of units in our farm plant, more effective farm policies and programs further requires a much more adequate analysis and description of family farms, larger-than-family farms, and inadequate units than is now available. Making those social and economic groups of farms the focus of investigation will integrate otherwise unrelated bits of information into better tools for guiding change in our agriculture along constructive paths.

MIDDLEMEN'S ACCUMULATIONS AND EXPECTATIONS IN MARKETING FARM PRODUCTS

H. S. IRWIN*

Production and Marketing Administration

THE purpose of this paper is to invite attention to the importance of the accumulations of middlemen in the modern marketing of farm products.¹ Such accumulations are substantial, having largely replaced the part played by consumers, and to a less degree that played by producers, in carrying farm products forward until they are required by consumers. The accumulations are governed mainly by the expectations of middlemen as to the amounts which consumers will pay for the products accumulated and the quantities which consumers will require during the remainder of the season.

By middlemen's accumulations of farm products is meant the amounts of each commodity (including products and by-products) purchased by middlemen following harvest or during periods of seasonally heavy production in excess of immediate merchandising or processing needs. An example of such stocks is the quantities of butter withdrawn from consumption during the period of flush production and placed under refrigeration. Ordinarily the accumulations are built up to seasonal peaks during the periods of heavy farm marketings and then are drawn down to zero or to low levels by the end of the respective seasons. Frequently there is no definite separation between the accumulations of a commodity and the administrative stocks required in its processing or merchandising, but the administrative stocks are characterized by much smaller fluctuations in volume.

The marketing problems posed by middlemen's accumulations of farm products are complicated to a considerable extent by the tendency toward concentration. Commonly a large proportion of the accumulation of each commodity is held by a comparatively small number of concerns, usually at the wholesale level, and indications are that frequently the amount is so burdensome as to require relief. Such problems are peculiar to large-scale accumu-

* The opinions expressed are the authors only and do not necessarily represent the official views of the U. S. Department of Agriculture.

¹ Accumulations of other products are important as well but because of differences of organization in production and marketing it is convenient to restrict the present discussion to middlemen's accumulations in the marketing of farm products.

lations, but are very real to the middlemen involved. The advantages of the concentration, however, appear to have overbalanced the difficulties.

Analysis of the accumulations reveals that the following elements of marketing are involved in them:

1. Influencing market prices, especially during accumulation
2. Making a market when farm offerings are large
3. Equalizing the flow of commodities to consumers
4. Regulating, in part, the seasonal pattern of consumption
5. Storing the stocks accumulated
6. Financing the accumulation
7. Assuming the risks of ownership (principally price changes).

Although these accumulations and the expectations which govern them are important in the modern marketing of farm products, they are not considered explicitly in current marketing literature. It is true that marketing texts and other material include discussions of storage, financing, and risk assumption, but these separate and general discussions fall far short of presenting the full picture of the part played by middlemen's accumulations which must include the first group of elements noted above.

Failure to give explicit consideration to the importance of middlemen's accumulations leaves a wide gap in the understanding of the marketing of farm products. The omission results in a material under-estimation of the services rendered by middlemen, especially in the wholesale field, and is at the root of warped impressions concerning some other elements of marketing.

These conclusions are supported by the following exploratory survey of the part played by middlemen's accumulations and expectations. The main points are : (1) accumulations of farm products by middlemen have increased greatly, matching the reduced proportions carried forward by consumers and producers, (2) the accumulations tend to be concentrated in a comparatively small number of concerns, principally at the wholesale level, (3) the concentration tends strongly to become burdensome, and (4) in the principal commodities the concentration is relieved either by means of organized or unorganized trading in futures or by the formation of vertically integrated corporations. In view of the importance of these accumulations they, and the expectations which govern them, should be studied with an eye to increased social efficiency in their operations.

Middlemen's Accumulations of Farm Products Are Important

In the absence of quantitative data a convenient indication of the importance of the accumulations of farm products by middlemen is the extent to which middlemen have replaced consumers and producers in carrying forward these commodities from their production to their ultimate consumption. A hundred years ago most farm products were carried forward by consumers.² Nearly every family of standing had wheat or flour to last until the following harvest, fruits and vegetables were dried, and meats were dried, salted, or smoked. Today, many families buy bread from bakeries or stores each day or two, depend upon canners or quick-freezers for fruit, and rely upon meat packers and butchers for meat.³

To a smaller degree, the role of farmers in carrying forward their products likewise has decreased. A materially larger proportion of farm products is marketed promptly than was the case 100 years ago. Farmers also are much less self-sufficient with respect to food than they were, buying a considerable proportion currently.

Even within the past 25 years the part played by middlemen's accumulations of farm products has increased decidedly. One indication is the increase in the per capita consumption of commercially canned fruit in the United States from less than 10 pounds in the early 1920's to about 18 pounds in 1940. The corresponding increase in canned vegetables was from approximately 15 pounds per person to nearly 25 pounds. In the case of wheat the part played both by consumers and producers in carrying stocks forward has decreased since the early 1920's. The dependence of consumers upon bakeries has increased to a material degree, and from the farmer's end an increased proportion of the wheat now is trucked directly from the combine to market.⁴

Further, in some commodities, such as eggs, nearly all the quantities carried forward are owned by middlemen. Practically none were carried forward formerly by producers because of the need for specialized techniques in their preservation. In these commodities the merchants and processors have not merely taken

² Cf. H. B. Killough and Bannington Associates, *The Economics of Marketing*: 107-108 (1932). See also J. H. Frederick, *Agricultural Markets*: 1 (1939). It is recognized that 100 years ago a large proportion of families included producers as well as consumers of farm products.

³ Cf. Margaret G. Reid, *Consumers and the Market*: 74 (1932).

⁴ It is recognized that a considerable amount of wheat and other grains is handled by farmers' cooperative associations, but it is believed that at least most of them should be counted as middlemen for this purpose.

over a function formerly exercised by producers or consumers; they have added a new function in the marketing of these commodities. In certain other commodities, such as butter which in early days was salted heavily and carried forward by farmers, the part now played by merchants in carrying surpluses forward is greater than a mere replacement of the farmers' role because the present storage product enjoys a much wider market than did the heavily salted butter carried forward before cold storage. The farm products carried forward almost exclusively by middlemen by means of special techniques add materially to the proportion of all farm products carried forward by merchants and processors.

Consumers are increasingly dependent upon middlemen and farmers for the maintenance of a steady flow, particularly of food-stuffs. Putting it another way, farmers and middlemen are, in effect, partners in supplying the needs of consumers for farm products and the increased assumption of the reservoir function by middlemen has increased their position in the partnership to a material degree.

Middlemen's accumulations consist principally of seasonal and after-harvest surpluses of farm products, some of them substantial carryovers. In most commodities little attention has been given until recent years to carrying supplies forward from the season in which they were produced. "The fundamental problem in agricultural markets is to move the whole crop, or annual supply of particular products, into consumption without loss to the producers, without a shortage developing, and without much surplus or carryover into the next crop year. . . ."⁵ The accumulations of most farm products by middlemen are built up to peaks following heavy farm marketings and subsequently are drawn down to low levels or to zero by the end of the crop year.

Accumulations Are Governed Mainly by Business Considerations

Contrary to popular notions, the reservoirs of farm products built up by middlemen appear to be influenced principally by the business positions of the concerns involved. Commonly the amounts accumulated by many concerns are much larger than those which the concerns would desire solely in the hope of an advance in prices, as witness the extent of hedging in those commodities in which hedging is available.

⁵ J. H. Frederick, *Agricultural Markets*: 1 (1937).

The business considerations which result in increased accumulations take a variety of forms, all intended to improve the business positions of the respective concerns. A common form is the desire to retain suppliers and customers as well as to obtain new ones. During the period of heavy farm marketings of a given commodity, a concern which accumulates stocks will desire to purchase all the offerings of its regular suppliers lest they develop other outlets and, if practicable, to increase its volume by accepting offers from other suppliers. During the period of seasonal scarcity a concern desires to control a stock adequate to provide its regular customers with their full requirements and also to be able to offer supplies as inducements to potential new customers.

Another form is the desire on the part of processors to assure an adequate supply of seasonally scarce commodities or of certain qualities of a given commodity. For example, a flour mill located in an area of high protein wheat and specializing in flour of high gluten content may find it desirable to accumulate a relatively large supply of high protein wheat following harvest lest such wheat should be difficult to obtain later in the season.

It is recognized that middlemen's accumulations are speculative in the sense that they are subject to the uncertainties of future price behavior. Thus they may result in unusual profits or in severe losses. Certainly the accumulations and the prices at which they are acquired are influenced by the expectations of seasonal price advances in most years, even though it is generally recognized that any year may vary widely from the usual and may even be negative. Doubtless, also, there are some middlemen whose principal motive in accumulating a supply is to obtain a profit from the hoped-for advance in prices but it appears that as a commodity market becomes relatively mature the business considerations increase in importance and become the dominant factor governing the accumulations. It appears also that the competition of the concerns which accumulate stocks for business reasons tends to reduce seasonal spreads and render speculation relatively unprofitable.⁶

⁶ Such a shift in the Chicago butter and egg trade was evident in the 1930s. Toward the end of the decade numerous complaints were voiced that a "perfect hedge" (a price for November butter or October eggs which would equal the purchase price and carrying charges) was increasingly difficult to obtain and there was grumbling to the effect that the storage margin had been reduced unduly. Cf. Alonzo E. Taylor, "How Wheat Is Commonly Carried by the Trade" in *Variations in Wheat Prices*, Wheat Studies V: 271-274, June, 1929. Food Research Institute, Stanford University, California.

Concentration of Accumulations Adds to Marketing Problems

If the stocks of farm products accumulated by middlemen were evenly divided among all the middlemen involved, the problems of accumulations in the marketing of farm products would be comparatively simple. Actually it appears that the accumulations of each commodity tend strongly to be concentrated in a comparatively small number of concerns, principally at the wholesale level, with some tendency also toward concentration in certain marketing functions. Full explanation of the underlying reasons for these tendencies must wait upon further investigation but some of the factors may be noted.

The situation with respect to concentration and the wholesale level is thus described in a leading publication:

... Most producers sell their products long before the next crop year. Local merchants . . . resell soon after purchasing the crops. And since manufacturers and most retailers and customers prefer to buy in quantities which conform closely to their current needs, it is the wholesale middleman who bears the major burden in carrying the investment in farm crops from the time they are sold by the producers and local buyers until they are finally taken off the market by manufacturers and final consumers.⁷

In a number of instances, however, substantial stocks are accumulated by manufacturers, as in the case of some millers.

The tendency toward concentration of the accumulations is evident within the wholesale field also because many wholesalers take little or no part in accumulating farm products. Thus the accumulations are concentrated in the hands of only part of the wholesale dealers in the respective commodities. In partial explanation of the non-participation of many wholesale dealers in this service two factors may be noted. First is the sharp difference between accumulation and current wholesale operations; second is the apparent disadvantage of small wholesalers operating in large commodity markets. Both point to the importance of adequate financial resources in the accumulation of farm products.

With respect to the difference between accumulations and current wholesale operations it is apparent that the latter ordinarily are characterized by dealings in large lots at small costs and profits per unit. In contrast to current operations the profits or losses per unit on accumulations may be large. Consequently, a

⁷ Fred E. Clark and L. H. D. Weld, *Marketing Farm Products*: 305 (1932). See also comments on reduction in stocks held by retailers in Margaret C. Reid, *Consumers and the Market*: 74, 2nd edition, 1939.

concern with limited capital may well avoid any substantial accumulation of stocks for fear that a decline in price might cripple it or even force it out of business.

Turning to the disadvantages of a small wholesaler in a large commodity market, it appears that they may cause many such concerns to expand current operations rather than attempt accumulation of the commodity handled. A small concern may enjoy local advantages, but in a nationwide market it is likely to be handicapped in dealing with distant customers who frequently require a wide range of quality of product, and the small concern may also experience greater difficulty in controlling credits, collections, and transportation questions than a larger concern. It is also more difficult for a small concern to keep its name before customers. On the whole it may be concluded that these factors may influence a number of small wholesale concerns to expand current operations, rather than to undertake accumulation of the commodity handled.

Further, the capital required in the accumulation of farm products competes sharply with that engaged in the current handling of those products. That required in current operations commonly reaches its peak during the period of heavy farm marketings which is also the time when accumulations are undertaken. A concern having only sufficient capital for the peak of current operations is not in a position to accumulate stocks.

Other factors as well doubtless operate to restrict the principal accumulations of farm products to a comparatively small number of concerns. Study of these factors will throw new light upon the activities of wholesale dealers in farm products and the services which they render. Most of the accumulations of farm products by middlemen are held by a small proportion of the concerns dealing in the various commodities.⁸

Financial resources frequently are a limiting factor in the accumulation of farm products by wholesale middlemen, particularly in commodities in which the risks of price declines cannot be shifted largely to others by means of hedging. Prudent management suggests that the ratio of commitments resulting from accumula-

⁸ This tendency is evident in the commodities placed under the Commodity Exchange Act from a comparison of the stocks owned by the larger hedgers with the total commercial stocks of each commodity. It is recognized, however, that probably the concentration in those commodities has been increased materially by the ability of the hedgers to transfer risks of price changes to others.

tions to assets should not be permitted to become high lest losses should necessitate a reduced scale of operations or even force the concern out of business. Concerns in strong financial positions are able to set up reserves in years of profits to offset the losses sustained in bad years; some concerns with limited capital accumulate relatively large stocks from time to time, and in unfavorable years a number of them are crippled or forced out of business. In commodities having organized futures markets it is possible to reduce the risks of accumulations to a large extent, by means of hedging with the result that the ratio of accumulations to financial resources may be larger in such commodities than would be prudent in commodities in which hedging is not possible.

There is reason to believe that frequently concentration of middlemen's accumulations is burdensome to many of the dealers involved. Very likely this is attributable (in large part) to the merchandising and processing considerations which induce dealers to accumulate larger stocks than they would if they were influenced only by the hope of an advance in price. Presumably the necessity of keeping down the ratio of accumulations to financial resources is especially burdensome to relatively new concerns which, growing rapidly, are eager to increase their volume of business. That such dealers are disturbed is evidenced by their efforts to devise methods to deal with the concentration.

Methods to Reduce Concentration Were Essential⁹

Incomplete evidence indicates that burdensome concentration of middlemen's accumulations characterized each of the principal farm products in turn as the market for that commodity widened and increased in size and complexity. Crippling losses and bankruptcies were common among the unfortunate or less shrewd of the middlemen who were entering upon the new venture of accumulation of respective commodities. In a number of commodities the concentration was relieved in part by the use of forward or time contracts which, in some instances, ripened into organized trading

⁹ This conclusion is supported with respect to grain, cotton, butter, and eggs by studies reported in an unpublished paper by the writer, entitled, *Organized Trading in Butter and Egg Futures: Its Background and Evolution*. The analysis indicated clearly that middlemen in the respective commodities were attempting to escape from the degree of speculation which new conditions were thrusting upon them. With respect to other commodities the generalization is largely inferential, but the inferences seem warranted by the efforts made to avoid the concentration of speculative risks resulting from the increasing accumulations by middlemen.

in commodity futures with the continued growth of the commodity markets. In certain other commodities the concentration has been relieved by the combination of a number of marketing functions into one corporation which is known as vertical integration.

Time contracts were employed extensively in grain marketing at Chicago and in cotton marketing in New York as early as the 1850's. They had been employed in the purchase of hogs in the vicinity of Cincinnati before 1850. In grain at Chicago the first instances found resulted from the tremendous increase in the accumulations of corn by corn dealers along the Illinois and Michigan Canal and the Illinois River which followed the opening of that canal. Much ear corn was hauled to dealers' cribs in the winter when the roads were not bottomless at least, but for fear of damage in shipment much of it had to be held until the late spring or summer before shelling and shipment. Evidently the resources of the dealers were strained to the utmost in providing additional facilities and in holding the rapidly increasing amounts of corn. Time contracts provided one means of relief from the concentration of accumulations. Such contracts also came to be employed in wheat, in part because the wheat which accumulated there after the close of lake navigation in the fall had to be held until the spring.

Time contracts in cotton marketing at New York attracted attention as early as 1851.¹⁰ Their use in butter and egg marketing began much later than in wheat and cotton since the accumulation of butter and eggs had to wait upon the development of cold storage. In a number of other commodities such contracts are employed at present.

It is evident that through entering into a contract to sell a specified quantity at an agreed price on a future date a dealer who has stocks on hand is able to reduce his price risks. Thus he can enlarge his operations beyond the point where prudence otherwise would call a halt. Indications are that the use of time contracts is helpful in comparatively small commodity markets at stages when they are restricted to a small number of dealers who fulfill their contracts.

Time contracts, however, became outmoded in a number of the principal commodities by the continued expansion of the market. As the number of merchants operating in the market increased,

¹⁰ Stanley Dumbell, "The Origin of Cotton Futures," *Economic History*, I: 259, May, 1927.

and as time contracts came to be used by a larger proportion of them, the difficulty of fulfillment of contracts increased, particularly at times of sharp changes in price level. Various efforts toward enforcement of such contracts were made, including provision for deposits of margins by one or both parties to the contracts with proposals that margins should be increased if the market should continue to go against one of the parties. These efforts met with only moderate success and the time contracts proved unequal to the demands of the widening markets. The need for more effective enforcement resulted in the inauguration of the early stages of organized trading in futures. Thus the early announcements of the Chicago Mercantile Exchange emphasized their contention that contracts entered into under its rules would be enforced.

Considerable evolution is evident in the organized trading in futures since its inception in each of the principal commodities. Such evolution reflected the continued growth of the respective commodity markets in size and complexity. The outstanding change in organized trading has been the development of hedging. In contrast to time contracts which contemplated the fulfillment of the contract by the delivery of the commodity specified, hedging contemplates that most futures or contracts will be settled by offset and that the commodity hedged will be merchandised in most instances by the hedger. Thus an efficient merchandiser may hedge to transfer to others most of the risks of price changes while retaining the control of the merchandising of the commodity. The development of hedging permits a material increase in the concentration of commercial speculation in the commodities hedged. At the same time it favors increased competition in carrying stocks forward because it reduces the importance of large financial resources in this function and thus allows efficient merchandisers to compete more vigorously.¹¹

Vertical integration also relieves the concentration of middlemen's accumulations although in a different way. It commonly combines functions featured by a high degree of accumulations with other functions having smaller accumulations and, in effect,

¹¹ The attempted explanation of the advantages of hedging on the basis of "transfer of risks to specialists" which are contained in a number of texts on marketing and economics are shown to be invalid by the studies of the Commodity Exchange Administration. On the whole, the other side of the hedges is taken by numerous small traders drawn from a wide variety of occupations. Indications are that their market judgment is inferior to that of the hedgers.

spreads the risks of the accumulations proportionately over all the functions included in the corporation. Tobacco is conspicuous among the farm products marketed principally through vertically integrated concerns; livestock products, cheese, and canned milk are prominent among the other products.

Obviously, the relief afforded from burdensome concentration of accumulations by vertical integration depends upon the extent to which low concentration functions are combined with those featured by a high degree of concentration. In cigarettes nearly all the marketing functions are performed by the vertically integrated concerns, from the purchase of the tobacco from the farmers at auctions to the sale of cartons of cigarettes to retailers through wholesalers whose activities are supervised. In livestock products the marketing services rendered by the leading meat packers extend from the purchase of animals at stockyards or even at country concentration points to the sale and delivery of meat to retailers.

Relief from the concentration of accumulations does not appear to have been a prime factor in the rise of vertical integration in marketing farm products. Other considerations frequently seem to have been more important; in fact, in some instances its aid in handling the concentrated accumulations may not have been recognized until after the integrated concerns were in operation. Yet the advantages of vertical integration in handling accumulations are substantial, and they contribute materially to the success of the vertically integrated concerns.

One or the other of the ways of dealing with the concentration of middlemen's accumulations—organized or unorganized futures trading or vertical integration—features the marketing of nearly all farm products. Both are found in some commodity markets. For example, in canned fruits and vegetables forward (futures) contracts are employed by independent canners while other portions of the canning field are occupied by vertically integrated concerns. In lard and provisions which are produced by vertically integrated concerns there was organized trading on a limited scale up to World War II. There is some reason to believe, however, that successful vertical integration tends to displace organized trading in commodity futures.¹²

¹² With respect to lard and provisions there are indications that the trading had been much more active in former times. Before 1880 it appears that such trading

The foregoing material indicates that the disadvantages experienced by middlemen in the evolution of their accumulations were substantial, especially during the periods of rapid expansion of the respective commodity markets. Yet the accumulations continued to increase in the face of the difficulties. This circumstance indicates that even greater disadvantages were confronting producers and consumers in the changing conditions, causing them to relinquish gradually a portion of the farm products which they carried forward.¹³ From the farmers' standpoint the difficulty of keeping in touch with consumers' requirements as the market widened may have been a contributing factor; from the consumers' viewpoint the rising standard of living and the lack of storage space in many city dwellings may be mentioned.

Social Responsibilities of Accumulations Should Be Recognized

The extent of middlemen's accumulations of farm products, the services which they render in the marketing of farm products, and the degree to which both farmers and consumers are dependent upon these services indicate clearly that these accumulations entail great social responsibilities. Popular recognition of these little understood responsibilities is highly desirable, both to stimulate constructive measures and to control abuses.

These responsibilities have been perceived only vaguely by the public and by a number of middlemen for a number of reasons. Two of the main reasons may be the failure to appreciate fully the growth of the accumulations and the difficulty of distinguishing between their collective and their individual aspects.

The present position occupied by middlemen's accumulation is

may have been used to a considerable extent by a number of pork packers to hedge the accumulation of their products. Testimony to the effect that some such hedging was done in New York was given at a legislative hearing, *Report of the Committee to Investigate the Cornering of Grain and Other Articles*, New York Senate Document V: 493, No. 45, 1853. Very likely considerably more hedging was done in Chicago which was closer to most pork packing plants.

¹³ One disadvantage from the farmers' viewpoint is the effect of the financial resources of the middlemen accumulating stocks upon the prices received by farmers when marketings are unusually heavy, as in the case of a large crop. Such resources would tend to limit the amounts which could be accumulated during larger than average marketings and would tend to depress prices since after merchants had accumulated their normal amounts they would be less interested in more, unless at price concessions.

Likewise, after a season of speculative losses the desire of the accumulators to recoup their losses, in addition to the reduced funds available to them, would tend toward lowering the prices paid to farmers during the next period of heavy farm marketings.

the result of a gradual evolution. It is extremely doubtful if society would have voted in advance to entrust so much responsibility to the middlemen of the respective industries. But over a period of years the continued willingness of middlemen to purchase and hold stocks of the various commodities induced farmers and, particularly, consumers to reduce their holdings. The change in any year may have been hardly perceptible; over 25 years it is significant.

The evolution, however, applies only to the collective aspect of the accumulations of farm products by middlemen. From the individual aspect there has been comparatively little change in many features of the operation since its beginning. Each concern attempts to buy as cheaply as possible when farm marketings are heavy and to obtain the best prices possible when selling. If an accumulator pays too much for his stocks or acquires too large a stock, he must accept a loss at the end of the season. Warehousing, financing, and risk assumption remain the individual responsibility of the accumulator.

Emphasis upon these individual aspects of accumulations may be used to attempt to avoid the responsibility attaching to the collective aspects. Cloaked by comparative anonymity, many of the smaller middlemen tend to shrug off any share of social responsibility, pointing to their difficulties in obtaining profits in the face of competition. Their contentions frequently seem plausible until consideration is given to the advantages which middlemen as a whole enjoy because of the dependence of producers and consumers upon their accumulations.

Such dependence is the result of the evolution of the collective aspect of the accumulations. At the outset no significant social responsibility was apparent. When grain merchants, for example, first accumulated small supplies of wheat, the scattered holdings had no appreciable effect upon wheat marketing. Gradually, however, the continued willingness of middlemen to purchase and carry forward stocks of farm products and to feed supplies out to consumers resulted in substantial accumulations while both farmers and consumers came more and more to depend upon middlemen for these services.

Recognition of the part played by middlemen's accumulations in the marketing of farm products will contribute to increased efficiency in marketing both by improvement in performance and by correction of abuses.

Recognition would involve the development of approximate standards of performance of the reservoir function by middlemen, taking into account the problems peculiar to accumulations. It would imply commendation of an industry for unusually creditable achievements from the public standpoint as well as criticism for poor results.

Gains arising from such recognition may be predicted with especial confidence in the commodities featured by futures trading in them because recognition would correct misunderstandings which cause lowered efficiency. At present the popular prejudice against such trading, which is confused with gambling, tends to deter many men of high repute from assuming futures positions, and thus leaves the important function of price determination to men of less experience, presumably of inferior judgment, and probably with a less keen sense of responsibility. Actually it would be in the public interest to encourage the shrewdest judges of market conditions to participate in the determination of futures prices because of the importance of those prices to the producers, middlemen, and consumers of the respective commodities and recognition of middlemen's accumulations will contribute to that end.

Recognition also would aid in obtaining improved rules governing the organized trading in futures through clearing away the prejudices which now discourage the more enlightened exchange members who are attempting to render better services in the marketing of the various commodities. Popular appreciation of the way in which the trading contributes to that marketing would help materially in effecting improvements.

Turning to the control of abuses, it is apparent that the need for such controls in organized trading and in vertical integration would be thrown into sharper relief by recognition of middlemen's accumulations. This result would be pronounced in organized trading in which the popular notion that much of the trading is merely gambling, reprehensible but perhaps not too serious, has diverted attention from the results of certain practices. Actually, the distortion of futures prices by means of manipulation or other practices is much more serious than gambling and deserves stricter control.

In general the abuses found in organized trading in commodity futures result from imperfections in the rules governing the trading which, in turn, trace to lack of recognition of the functions of the trading in the minds of many of the members of the exchanges.

The two main types are (1) manipulation which includes corners and squeezes and (2) speculative price cycles.

Corners and squeezes have been known for many years but now are of reduced importance. Corners, once frequent, have nearly disappeared. The incidence of squeezes has been cut down in the commodities included in the Commodity Exchange Act, in part because of prosecutions and in part because of regulations providing for a period of delivery beyond the end of trading.

Speculative price cycles which account for a large share of the wide fluctuations in certain commodities are less well known. They were first identified in 1931 by H. Working who found 21 major speculative price cycles in a study of 43 years of wheat prices.¹⁴ In addition there were other smaller cycles, including the one in 1928 which showed an advance of nearly 45 cents per bushel from early February to its peak on April 30 and was followed by an even greater decline. Such cycles consist of an advance occasioned by over-optimistic buying and a subsequent decline. Indications are that they are of greater importance than corners and squeezes and also are more difficult to control.

Evidently the advances in speculative price cycles are largely manifestations of mass psychology. They result in large part from the overbuying of numerous small traders who are attracted by a rising market and who hope for a continued advance. Buying by professional traders also contributes to the advance and the buying enthusiasm is fanned by brokers, eager for additional business. When the wave of buying subsides, the price is higher than is warranted by existing conditions and a decline ensues. Professional traders are quick to close out their long positions when the advance slackens and some of them sell short on the subsequent decline.¹⁵ Small speculators tend to hold their long positions, hoping for a resumption of the advance, and frequently are forced out by

¹⁴ H. Working, *Cycles in Wheat Prices*, Wheat Studies VIII, November, 1931. Food Research Institute, Stanford University, California. See also, *Seasonal Tendencies in Wheat Futures Prices* by the writer. Processed, 27 pages, January, 1936. Grain Futures Administration, United States Department of Agriculture.

¹⁵ A minor abuse which contributes to speculative price cycles and other fluctuations in prices is the trading on price movements by professional traders. It consists of buying when prices are advancing and selling when prices are declining, expecting that the movement will be continued and depending upon the market agility of the trader to close out his positions quickly when the trend is halted or reversed. See "Risk Assumption in Trading on Exchanges" by the writer, *American Economic Review*, XXVII: 269, June, 1937. Cf. J. M. Keynes, *The General Theory of Employment, Interest, and Money*: 148-151 (1935).

exhaustion of margins. Frequently the heaviest losers are the small speculators who are drawn into the market on the buying side near the end of an advance.

Control of speculative price cycles would result in greater price stability in a number of commodities, but it must wait upon a better popular understanding of the nature of the cycles, their effects upon commodity prices, and the losses incurred by numerous small traders who take part in them. Indications are that only limited effects could be obtained by the imposition of governmental regulations under current conditions.

Much less information is available concerning abuses in the accumulations of farm products by vertically integrated corporations. In part this may be true because their operations in this respect have not been studied to the same extent by public agencies. It appears that the way is open to abuses, and while many concerns doubtless are relatively free from them, it is doubtful if this is true of all concerns. Indications are that most of the possible abuses fall into the field of imperfect competition which has received attention only in comparatively recent years.¹⁶

One possibility may be the exercise of price leadership which is considered by some authorities to be one of the most far-reaching methods of price fixing in American industry.¹⁷ In appropriate circumstances it is thought to work against reductions in selling prices; with equal logic it might hold down prices paid to producers during periods of heavy farm marketings.

*Broad Study of Middlemen's Accumulations
Should Be Undertaken*

Only the general outlines of place occupied by the accumulations of middlemen in the marketing of farm products, as indicated by the admittedly incomplete information available, could be presented in the foregoing material. They point strongly to the conclusion that these accumulations and the expectations which govern them are important factors and that their omission warps the current understanding of marketing. Accordingly it is urged that a broad study of middlemen's accumulations of farm products

¹⁶ In the agricultural field see A. C. Hoffman, *Large Scale Organization in the Food Industries*, Monograph #35, Temporary National Economic Committee, 1941 and W. H. Nicholls, *Imperfect Competition Within Agricultural Industries* (1941).

¹⁷ See George T. Comer, "The Outlook for Effective Competition," *American Economic Review*, XXXVI: 156, May, 1946.

be inaugurated to obtain concrete evidence as to their importance, their usefulness, and what they may contribute to increased efficiency in marketing farm products. Likewise, the advantages and disadvantages of such accumulations should be considered carefully in order to determine whether or not it would be in the public interest to replace them with governmental accumulations.

It is reasonable to conclude that analysis of the services rendered by middlemen's accumulations in the movement of farm products from producers to consumers will add materially to the appreciation of the work of middlemen, especially at the wholesale level where the accumulations tend to be concentrated. It may well be true that analysis will disclose that the operation of reservoirs of farm products constitutes a large proportion of the work of wholesale middlemen, and that familiarity with accumulations is essential to an adequate understanding of wholesale commodity markets. Needless to say, the accumulations should be considered in any attempts to determine reasonable costs of marketing farm products.

Information developed by a study of middlemen's accumulations should be of great value to commodity markets which now are in the stage of rapid expansion, such as quick frozen fruits and vegetables and dried milk, where the problems of accumulation are acute. Analysis of the conditions which were experienced in comparable stages of other commodity markets and of the ways in which relief was obtained should aid the newer industries in arriving quickly at solutions appropriate to their respective needs.

Information concerning middlemen's accumulations of farm products and their concentration at the wholesale level also should be of immediate practical value to cooperative marketing associations which are seeking to extend their activities into the wholesale field. It should be helpful both to managers and executive bodies in charting their new courses and to the memberships in comprehending the nature of the new undertakings and what each hopes to accomplish.

With respect to organized trading in commodity futures, the analysis of middlemen's accumulations opens the way to positive as well as negative methods of improvement. Formerly the study of this trading has looked mainly to improvement through bringing undesirable practices under control; further research should strive also to ascertain how the forces of this trading may be geared most effectively to efficient marketing of the products traded.

Outside organized futures trading, there is reason to believe that systematic study of the virgin field of middlemen's accumulations will open the way to marketing economies through the disclosure of conditions readily subject to improvement. This condition may be most apparent in the commodity markets now featured by unorganized futures trading. With respect to the commodities handled by vertically integrated concerns there may be less room for gains in efficiency, but there may be good reason for directing public attention to the discharge of the reservoir function as well as to efficiency in current operations.

An even more important reason for a broad study of middlemen's accumulations of farm products is the question of public policy, both from the standpoint of public attitudes toward commodity futures and vertically integrated corporations and, in particular, from that of inadvertent replacement of middlemen's accumulations by governmental accumulations, possibly to public disadvantage. Since the present system has become fitted to current needs by a long process of evolution its advantages and disadvantages should be compared carefully with those of governmental accumulations before replacing it wholly or in large part with governmental accumulations.

Governmental accumulations are not proposed for the purpose of displacing middlemen's accumulations. The prospect is, rather, that in the absence of recognition of middlemen's accumulations and the importance of their services the governmental activities likely to affect them may be incidental to market support operations or to international agreements. Market support operations already have competed with middlemen's accumulations; the threat from international agreements is a new possibility arising from the high degree of control now exercised over farm products by most governments.

Market support operations by governmental agencies began in 1929 with the purchase of large quantities of wheat and cotton by agencies of the Federal Farm Board. Substantial amounts were held for several years while prices declined and finally were closed out at heavy losses. Presently even greater accumulations of various farm products were built up, principally as the result of non-recourse loans to farmers which permitted the borrower to deliver the commodity to a governmental agency if the price level per unit did not come to equal or exceed the amount lent. In certain other commodities, as in butter, support was afforded by the purchase and hold-

ing of the commodity. Part of the accumulations was donated to relief agencies, as in the case of much of the butter acquired in 1938, but governmental stocks of many commodities became very large and until World War II caused a sharp increase in the demand for commodities, it appeared that heavy losses upon them would be incurred.

It appears that such accumulations resulted in only a moderate degree of competition with middlemen's accumulations since the governmental accumulations consisted mainly of season-end carry-overs while middlemen's accumulations are made up principally of seasonal and after-harvest surpluses. It does not seem that the reduction in middlemen's holdings interfered significantly with their marketing services.

Resumption of price support programs is urged in various quarters in anticipation of returning surpluses of farm products, and indications are that the programs may be expanded materially. Middlemen's accumulations which must pay their way while rendering important marketing services are highly vulnerable to the competition of such programs which are operated primarily with a view to protecting, increasing, and stabilizing farm prices and which may draw upon the public treasury to meet losses. Should such competition cut down middlemen's accumulations to the extent of hampering their services, it might be necessary to decide hurriedly whether to restrict the competition or to replace the services with governmental activities. Would it not be wise to analyze the part played in marketing by middlemen's accumulations well in advance of such a contingency?

With respect to the possible effect of international agreements upon middlemen's accumulations, it should be borne in mind that in nearly all other countries the marketing of farm products is controlled to a high degree by the respective governments. Even in Canada the marketing of wheat and coarse grains is handled by a governmental agency. In the absence of knowledge of the services rendered in this country by middlemen's accumulations the preference of other countries for governmental control might induce our representatives at international conferences to commit the United States to a degree of government control which might prove unsatisfactory. Study of middlemen's accumulations of farm products would aid in explaining the situation here to other countries and would permit mature consideration of their advantages and disadvantages before replacing them.

NATIONAL FOOD POLICY AND SURPLUS AGRICULTURAL PRODUCTION

RAINER SCHICKELE¹

North Dakota Agricultural College

SINCE 1942 we have struggled with food shortages rather than surpluses—not because food production declined—it expanded by more than one-third over the surplus-ridden prewar period—but because domestic and foreign demand expanded even more than production. Now in the second post-war year, we are beginning to worry about surpluses again; not because we expect production in the immediate future to expand further, but because we expect domestic and foreign demand to shrink. Food demand, however, will not shrink because people at home and abroad will need less food. On the contrary, they will need more. The anticipated decline in food demand will stem from the shrinking of effective purchasing power in the food market.

Hence, the phenomenon of surplus production of food as a whole originates in demand rather than supply conditions. Discounting abnormal war needs, I believe it can be demonstrated that American agriculture, as far as food production as a whole is concerned, is not over-expanded relative to the food demand generated by a prosperous full-employment economy at home and a reasonably active world trade.²

Our problem, therefore, is not one of production adjustments only, but of consumption adjustments as well, and calls for answers to these two leading questions:

1. What can be done to sustain effective demand for food at current or higher levels, and
2. What can be done about "surpluses" that might arise in certain individual foods?

Effect of National Income on Food Demand

In pre-war years domestic consumption absorbed about 97% of total food supplies available in the United States (including im-

¹ The writer has greatly benefited from the critical comments by Dr. J. D. Black of Harvard University who read an early draft of this paper. The responsibility for the findings and views expressed is entirely the author's.

² There is, of course, ample room for increasing productive efficiency in agriculture, for producing more food with a smaller farm labor force. Similar gains in efficiency can be made in many other sectors of the economy.

ports), and only 3% were exported. During 1943-45, civilians in this country consumed 80% of all the food, but that proportion was up to about 90% in 1946. (See Table 1.) It is clear that by far the most important determinant of food demand in the United States is the purchasing power of the domestic population.

TABLE 1. DISPOSITION OF U. S. TOTAL FOOD SUPPLIES¹

Year	Percent of Total Food Disappearance:			
	Domestic Civilian Consumption	Military and Exports	Domestic Production	Net Exports (+) or Imports (-)
1935-39	97	3	94	- 3
1941	94	6	95	+ 1
1943	79	21	95	+16
1945	81	19	94	+13
1946	89	11	96	+ 7

¹ From *The National Food Situation*, Sept. 1946, USDA, BAE. Food quantities weighted by 1935-39 farm prices.

Per capita food consumption³ during the war increased by 15%; without rationing, consumers would have taken even more at the prevailing prices—which were well above parity. Hence, if real national income could be maintained at war-time levels, per capita food consumption at prices near the parity level might rise to 20 percent above prewar. Such a consumption rate, together with food exports amounting to above 3% of food output (pre-war rate), would absorb our total current food production at reasonably profitable prices to farmers.

Real disposable income per person (in 1935-39 dollars) was about 50% higher in 1946 than in 1935-39. At 1946 prices this corresponds to a disposable income of 146 billion dollars. At such levels of income, and at food prices near parity, domestic consumers may be expected to demand about 18-20% more food per capita—or 30% more in the aggregate allowing for population increase—than they

³ The food consumption index here employed is derived from physical per capita consumption rates weighted by 1935-39 average retail prices. Hence, a shift from cheaper to more expensive foods increases the index number without increasing the poundage or caloric content of consumption proportionately. This index reflects changes in both quantity and composition of the food consumed.

did during 1935-39.⁴ This corresponds to the order of magnitude of food production achieved during the war. (See Table 2.)

TABLE 2. DISPOSABLE INCOME, FOOD CONSUMPTION, PRICES AND PRODUCTION

Year	Disposable Income		Domestic Food Consumption		Food Prod. Index	Retail Food Price Index	Farm Price Parity Ratio 1910-14 = 100
	Total Billion Dollars	Per Capita	Index				
			Total	Per Capita			
1935-39	64	495	100	100	100	100	84
1941	89	662	110	108	115	105	93
1943	125	907	106	106	133	138	119
1945	140	994	112	112	136	139	116
1946*	146	1,020	123	115	134	160	120

* Preliminary.

Quite apart from the general level of prices and national income, the pattern of income distribution by size also affects aggregate food demand. In 1941, families with \$1500 income spent about 33% for food, while \$10,000 families only about 14%.⁵ The marginal propensity to purchase food decreases rapidly as family incomes exceed \$5,000. Hence, an increase in the income of the upper third of the families may hardly be reflected in aggregate food demand, while a similar absolute increase in the lower third would strengthen the food market substantially. If the national income were distributed first according to the depression pattern of 1935-36, and second to the prosperity pattern of 1942, and the propensities to purchase food peculiar to the various income groups remained constant, domestic consumers would in the second case demand 15-20% more food than in the first case at the same level of food prices.⁶

These considerations suggest this proposition:

Domestic consumers can be expected to absorb a 1943-46 volume of food production at or above parity prices as long as (1) disposable income does not fall materially below \$146 billion (at 1946 prices), and (2) this income is distributed according to the pattern prevailing in

⁴ Although the proportion of consumer expenditures for food was higher than normal during the war, the proportion of disposable income used for food did not change materially. Hence, the money that could not be spent for many consumer goods went into savings rather than food purchases.

⁵ See U. S. Dept. of Labor, Bul. No. 723, p. 20.

⁶ See R. Schickele, "Programs for Maintaining Food Demand," this JOURNAL, Feb. 1947, p. 326.

1945-46 or better (i.e., a larger than pre-war proportion of total income secured by the lower-income groups).

It follows, that general food surpluses are not likely to arise directly on account of reduced foreign demand (as is often argued), but rather on account of a decline in national income and a deterioration of its distribution. This holds particularly for livestock, dairy, and poultry products, most vegetables and fruits⁷ from which farmers derive about 80% of their cash receipts from food production.

The Nature of Food Surpluses

It is, of course, way beyond the scope of a national food and farm price policy to stabilize national income on a full employment level. Our problem is how to maintain an effective food demand high enough to absorb capacity food production at reasonably adequate prices *in case of declining national income and attendant distortions in its distribution*. If fiscal and other policy measures succeed in keeping the economy operating in high gear, serious general food surpluses are not likely to arise within the near future; but if such measures fail, widespread surpluses are bound to develop, and the spectre of want in the midst of plenty will again shake the foundation of our economic system.

At this point it is necessary to differentiate between various aspects of the surplus problem.

1. The term "surplus" has economic meaning only as it refers to a specific level of prices. *Theoretically*, this level is determined by marginal cost-return relationships. If *aggregate* food production is so large relative to effective consumer demand that the *general* level of farm prices drops to a point where a substantial proportion of farmers cannot meet production and living expenses (including reasonable charges for fixed land and capital assets), food production is in economic surplus. In applying this definition to *individual* foods, great difficulties are encountered on account of the joint-cost character of the farm production process and the widely varying limits of shifting resources from lower to higher priced products. The *administrative* determination of surpluses of *individual* farm products as provided in existing price support legislation is based on extremely weak theoretical foundations. There is good evidence that these "parity

⁷ Wheat, rice, peas and a few important fruits are an exception in the sense that their normal volume of production is significantly above normal domestic requirements and their prices depend to a large extent upon export demand. The threat of continued potato surpluses is primarily the result of support prices being out of line with production costs. Problems of individual food surpluses will be discussed later.

- prices" are too high for some commodities (e.g. wheat, potatoes, eggs), too low for others (e.g. dairy products).³
2. *An over-all food surplus* (when the combined farm price parity ratio falls below say 90) resulting from a decline in national income *should not be eliminated by restrictive production controls*. The nutritional needs for national health do not vary markedly with business conditions. The families of unemployed workers require nearly as much food as when they are employed. Opportunities for shifting labor out of agriculture into industry are practically nil during depressions.—Hence, *measures to eliminate over-all food surpluses must be applied on the demand side*, by assisting consumers in absorbing the food supply at terms which permit the producers to remain solvent. Such measures may be called "*consumption adjustments*."
 3. As long as some kind of a price support policy for individual farm products is in effect, *surpluses of individual foods* (when a specific food product falls below whatever support price is established) should be remedied by one or a combination of the following measures:
 - a. *Revision of the support price* if there is evidence that it is out of line with the production cost structure of the farms producing the bulk of the output; or if the established support price stimulates a volume of output clearly in excess of what consumers are willing to purchase at that price.
 - b. *Consumption adjustments*, such as direct food distribution programs through school lunches and various non-commercial outlets, supplementing the purchasing power of consumers through some food stamp program, concentrating consumer purchases upon the surplus food by "abundant food campaigns," or expanding export outlets.
 - c. *Production adjustments* by inducing a shift of resources from the surplus food to other products (farm or non-farm) with more favorable cost-price ratios. Such shifts might well require public assistance in the form of conditional loans, grants and technical guidance. The acceptance of such assistance should be voluntary on the part of farmers. If such a shift should prove impracticable, or if the surplus is considered temporary or seasonal on account of abnormally high yields, emphasis should be placed upon other than production adjustment measures.
 - d. "*Supplementary payments*" to farmers covering the difference between the free market and a reasonable support price, if the surplus is considered temporary, or if such payments can be administered so that they do not discourage desirable production adjustments.
 4. We are here concerned primarily with food. Surplus problems in *non-food farm products*, like cotton, tobacco and wool, affect the food

³ For a recent discussion of parity prices, see the "Report of the Committee on Parity Concepts" in this JOURNAL, February 1946, pp. 380-397, and the series of papers on this subject presented at the Association's annual meeting, Dec. 27, 1945, *ibid.*, pp. 267-305.

situation only as resources are shifted out of these commodities into food production. In principle, the same criteria apply to non-food surpluses.

This brief exposition of the surplus problem recognizes the existing legal obligation of the government to support farm prices of various foods at certain levels, but assumes that considerable latitude can be obtained to modify specific support prices and methods of support operations.⁹

For purposes of policy formulation, it is most important to decide whether a given surplus condition should be remedied primarily from the demand side, or from the supply side, or through support price adjustments. This decision should rest upon the character of the respective "surpluses" and of the factors from which they arise.

Production Adjustments

Before discussing measures for relieving food surplus conditions from the demand side, let us sketch the limits within which adjustments on the supply side appear justified.

"Production adjustments" have become most fashionable words in the profession. And rightly so, since one of the major concerns of economic analysis is the process of resource allocation. I submit, however, that we are in danger of becoming lop-sided in our analytical approach if we take the pattern of demand, of "consumption allocation" for granted, and concentrate our efforts entirely on adjusting resource allocation (production) to the demand pattern of the present and recent past. There is no reason why the demand structure—which basically represents consumption allocation—should not be subject to the same scrutiny and made amenable to "adjustments" as production and resource allocation.

The concept of production adjustment necessarily refers to a given demand pattern. But if there is evidence that the current demand pattern is distorted or "maladjusted," it would be foolish to adjust production to that maladjusted demand.

We are acutely aware of this issue with respect to the demand distortions brought about by the war directly. But we seem to be much

⁹ Whenever Congress decides to review the whole structure of farm policy, a much more clear-cut distinction between the *ends* of national nutrition, farm production adjustments, farm income and price stabilization, and the *means* to implement those ends, should be achieved. See the Award Papers of the National Farm Price Policy Contest, this JOURNAL, November 1945.

less aware of the demand distortions brought about by depressions, unemployment, contracted foreign trade, and a seriously maladjusted income distribution. We are prone to adjust production to the general demand and price conditions of the inter-war period. Is it really justifiable to accept these conditions as the norm toward which to adjust resource allocation in agriculture?

Short-run and Long-run Adjustments

Individual farmers, of course, must to some extent adjust their production to short-run conditions—after all they live in the short-run. But public policy, especially in a free-enterprise economy, should leave a maximum of day-to-day decisions to the individual entrepreneur.

In agriculture, production adjustments to short-run changes in demand are severely limited by the nature of the industry. Production periods are long, the proportion of fixed factors is high in the resource total, and the annual output of an individual farm is beyond the operator's control by a wide margin. It is, therefore, important to distinguish between production adjustments achievable by shifting variable factors and those requiring shifts in fixed factors.

Re-allocation of Variable Resources

A farmer can make certain short-run adjustments in his production by:

- (1) shifting feeds from one to another livestock enterprise;
- (2) buying more or less feed;
- (3) changing the proportions of his land in the various crops;
- (4) changing rates of fertilizer application.

And that about completes the list. The practical limits of variation in these resource shifts are rather narrow. Changing the size of breeding herds already involves longer-run decisions. In any given year not all farmers can buy more feed as the annual total supply is fixed. Rotation and soil conservation requirements limit the change in individual crop acreages. Large sections of highly productive farming areas do not depend on fertilizer at all.

Hence, seasonal and even year-to-year adjustments in resource allocation can bring about only marginal changes in output—especially since hardly all nor even a majority of farmers will shift resources in the same direction simultaneously. This holds at least for the major food and feed products and in peace times. Such

short-run adjustments become more and more limited in scope as the degree of specialization increases, or the next best alternative use of a given resource yields a greatly reduced output value (e.g. from wheat to range grasses).

Nevertheless, temporary surpluses of several important foods can be at least partially relieved by such shifts in the allocation of variable resources; for instance an egg surplus by shifting feeds to hogs, beef or dairy cattle, or a potato surplus by shifting land to feed crops, sugar beets or other vegetables or reducing fertilizer application. Moreover, such adjustments can be appropriately induced by a combination of forward prices and production goals or by the free market price mechanism; they are definitely impeded by support prices which are out of line with costs on the one hand, and with prices of competing products on the other.

Reallocation of variable resources is not likely to result in a reduction of over-all food output. Even the far-flung AAA production control program during the thirties was not able to reduce total food production, which was fortunate, since such a reduction might have aggravated the general economic and social distress during the depression beyond the dangerpoint of revolution.

Because of the essentiality of food to sustain the life of people, and the fact that even under prosperity conditions millions of American families go hungry, *adjusting production downward to relieve a surplus by letting resources lie idle is economically and socially unjustifiable.* In such cases it is preferable to tackle the problem from the demand side or through supplementary payments.

Reallocation of Fixed Resources

Major long-run adjustments in agricultural production involve changes in the allocation of such relatively fixed resources as:

- (1) land area in cultivation, permanent pasture and timber;
- (2) size of breeding herds;
- (3) number and size of farm families;
- (4) amount and types of farm buildings and improvements.

If we were to take any current demand pattern for granted, adjustment to an over-all food surplus during a depression would require a reduction in all of these resources at least in terms of their degree of utilization. This would inevitably involve under-employment or idleness of a considerable part of the resources since their alternative employment opportunities outside agriculture would be practically nil.

From the viewpoint of economic welfare *continued production from mal-allocated resources is much better than no production from idle resources*. Hence, over-all food surpluses arising from a depression-distorted demand pattern should not be relieved from the supply side, but from the demand side by means of appropriate consumption adjustments.

The situation is different if chronic surpluses develop with respect to a reasonably adequate demand pattern under prosperity conditions. Only then is it a problem of shifting fixed resources out of agriculture and re-allocating them into other production lines. The most important resource involved in such a shift is, of course, the labor force of farm families. Here, too, mal-allocation is better than idleness. The transfer of farm labor out of agriculture should be encouraged only to the extent to which that labor can actually find employment elsewhere with at least the same productive value (or real income) as it yielded before. Hence, *the best time for bringing about such major shifts is in prosperity, not in depressions*.

Criteria for Production Adjustment

In view of these considerations I should like to submit several tentative propositions whose validity deserves testing.

1. In much of American agriculture more could be produced with less labor. Such increases in productivity per worker and in living standards, however, are equally possible in much of industry and trade. Product value per worker in agriculture as a whole increased at about the same rate as in industry as a whole between 1900 and 1940. This problem, therefore, is not peculiar to agriculture.

2. Transference of full-time farm labor from agriculture to industry should not be encouraged at a rate higher than industry under full employment can absorb. To that extent, however, public policies designed to facilitate such transference (e.g., through vocational training, employment services and financial assistance) should be developed.

3. Subject to (1) and (2) above, the labor force now engaged in total food production is not seriously out of line with requirements for meeting a reasonably adequate demand pattern likely to develop under conditions of full employment, improving income distribution, growing industrialization abroad and expanding world trade.

4. If periods of major unemployment, deteriorating income dis-

tribution, and shrinking world trade should re-occur, it is wiser national policy to develop demand adjustment and consumption programs and to keep the farm plant producing—than to plan for over-all output reductions and for shifting resources out of agriculture into idleness. For national economic welfare, “mal-allocated” resources are better than idle resources. This principle applies to industry as well; but since food is the main essential good whose consumption cannot be deferred for even a couple of days, or reduced by more than a small amount without causing hunger and unrest, this principle applies with particular force to agriculture.

5. There is current need for internal production adjustments within agriculture. A national policy of forward prices and production goals could become a most valuable instrument for bringing about desirable production adjustments and a reasonable degree of farm price stability. Price support operations required to administer forward prices should not be permitted to interfere with the consumption flow. If surpluses should threaten to accumulate, market prices should be allowed to drop below support levels, and supplementary payments to farmers covering the difference between the announced forward price and the market price should be employed. Production goals should be developed so as not to result in a less than normal total food production index; the combined index of forward prices weighted by the production goals should be kept close to an appropriately defined parity index.¹⁰

6. The concept of production adjustments might well be broadened to include soil conservation requirements and cost-reducing measures. The implementation of these adjustments cannot depend upon forward prices and production goals alone. Assistance to individual farmers in the form of technical advice, small multi-purpose (“barn-yard”) loans, relocation aid, and improvement in tenure conditions are needed. Cost reduction should become an explicit objective of agricultural policy. Effective cost-reducing measures could remove much of the surplus problem in several farm products by making their production profitable at lower prices.

Wheat and Cotton Surpluses

There are only a few major farm commodities which have repeatedly appeared in “surplus” position even during periods of

¹⁰ For details, see R. Schickele, “A Price Policy for Agriculture,” this JOURNAL, Nov. 1945, pp. 878-885.

relatively full employment. In recent years prices of potatoes and eggs required support operations several times under existing legislation. Both support prices are probably too high and may have contributed to bringing forth an output larger than the market could absorb at these prices. The character of these surpluses is not rooted in the long-time structure of agriculture. There are good alternatives to potatoes and eggs in their main producing areas; support prices could be lowered and still leave their production profitable, and consumption programs could be used to expand effective demand at least for eggs. Simultaneous measures along these lines would bring demand and supply in balance without large-scale public expenditures or structural production adjustments (involving re-allocation of fixed factors).

The situation is different for *wheat*. Here, too, the support price is too high. In terms of technical production efficiency there is no reason why American wheat farmers could not successfully compete with Canadian, Australian, and Argentine producers. But tariffs, commodity loans and price support guarantees have kept wheat prices above the world market for over two decades, and much of this price advantage has been capitalized into land values. A sudden and drastic lowering of the support price for wheat would cause real hardship to many producers.

And yet I question whether wheat production should be reduced to where the market would absorb the output at present support prices. Some acreage reduction is justified on conservation grounds; beyond that, however, the next production alternative in the main wheat areas is range grasses with a very much lower return per acre in nutrients and value. A substantial shift from wheat to grazing would require far-reaching structural changes in the agriculture of the wheat regions, displacing a large proportion of wheat farmers and involving wholesale consolidation of farms and high individual and social costs.

On the other hand, wheat is easily stored and transported, is a staple food for two-thirds or more of the world population, and is also an excellent feed grain. In the long-run, industrial expansion abroad is likely to lead to increasing import requirements of food and feed grains to support the growing urban population and the expanding livestock enterprises which are associated with industrial development and rising living standards.

When wheat surpluses will again arise in the United States and

other exporting nations, clearly the first line of attack should be on the demand side. Consumption programs under national and international auspices for undernourished peoples, and price arrangements which would permit certain types of wheat to be used as feed grain, could go a long way in averting accumulation of wheat surpluses.

At the same time, it would be in the interest of wheat farmers themselves if our policy were directed toward bringing domestic wheat prices in line with world prices. This might involve a systematic devaluation of land in most of the wheat areas by means of refinancing mortgages and related measures. The cost of such a program could well be assumed by the Federal Government as the saving to the American consumer would make up for the cost of land devaluation and refinancing within a few years' period. Undersized wheat farms could be consolidated in that process which would further reduce production costs. Farm families thus displaced should be assisted to relocate elsewhere in farming or outside of agriculture. Without such a corollary program the lowering of wheat prices to world levels might cause unbearable hardship to so many wheat farmers that political pressure would most likely block any change in wheat price policy.

By far the most important production adjustment problem is in the *cotton* region, especially in the old cotton South. Domestic cotton prices have been maintained above world prices much longer than wheat prices, and this price protection has also been capitalized into land values. Bringing domestic and world prices of cotton together requires similar land devaluation and refinancing measures as in the wheat regions. But here the similarity between the cotton and the wheat problems ends.

There are several reasonably close production alternatives to cotton in the Old South, such as various food and feed crops and livestock enterprises. Soil, climate and location are favorable to diversified farming in many areas, and some progress in that direction has occurred during recent decades.¹¹ But cotton acreage is still over-expanded from the viewpoint of soil conservation as well as of real production costs.

Apart from the problems of land devaluation, two powerful

¹¹ Cotton production controls under the AAA have effectively reduced cotton acreage, much of which was shifted to grasses, feed and food crops, and have contributed to diversification.

forces are blocking the road to diversification and better living standards in the old cotton South: the tenure system with its share cropping and emphasis on cotton as the paramount cash crop, and the general poverty of the masses of farm and town people. Prevailing tenure arrangements prevent or discourage share croppers and tenants from growing more food and raising livestock for home use and market. The poverty of croppers, tenants, and many small owner-operators bars them from access to credit on reasonable terms—credit desperately needed in the form of small loans for a team of mules, material for fences, livestock sheds, poultry houses, water facilities, limestone and fertilizer for crops other than cotton. The poverty of town people narrows the local market outlets for the variety of food crops and animal products (especially milk, lean meat, and eggs) which would be forthcoming under diversified farming, and in which both town and farm diets are so notoriously deficient.

Clearly cotton price policy has wide ramifications reaching far beyond price support, storage, and surplus disposal operations. Under present price supports cotton is bound to re-appear in chronic surplus. Lowering the support price for cotton necessitates as well designed set of production adjustment measures; but the whole brunt of the adjustment need by no means fall entirely on the supply side of the market. Demand adjustments should be made with respect to increasing consumption of cotton at home and abroad as well as increasing and diversifying local food consumption in the South. Simultaneous adjustment programs on the demand and supply side would supplement each other, would minimize the number of farm families to be uprooted in the production adjustment process, and would maximize the benefits of the total adjustment program to the welfare of farmers and consumers alike.

If such simultaneous adjustments in the demand and supply structure of cotton and food could be made; if lower-priced cotton consumption could be expanded in old and new uses at home and abroad; if cotton production costs could be reduced permitting higher cotton incomes from lower prices; if local food demand could be increased so that high-cost cotton farms could shift to food—then the order of magnitude of the cotton surplus and the oversupply of farm labor in the cotton south would appear considerably smaller than is now estimated, and the concrete problems of bringing about local production adjustment with all its technical,

social, and institutional ramifications would become more nearly manageable.

Maladjustments in the Demand Structure

When "free market" prices of farm products drop so low that farmers cannot meet their production and living expenses, the conclusion is usually drawn that production is over-expanded and should be reduced by shifting resources out of agriculture into other lines of production. Obviously the inference is that the supply side of the market is to be blamed, and that the demand side is above censure like divine law, or at least beyond human control like the weather.

Hence, many agricultural economists and officials turn their main attention to production adjustment programs to remedy the surplus situation, throwing the whole burden of adjustment upon the supply side of the market. During the thirties, when over-all food "surpluses" prevailed throughout most of the decade and gigantic output reduction programs were put into effect, the actual "adjustment" achieved of aggregate food supplies to the market demand was practically nil. The food production index hovered near the 100 mark throughout the period, despite two extreme drought years in close succession, and despite severely depressed farm prices.

There was, of course, considerable shift in output between farm products going on during that period, mainly from cash grains and cotton to live-stock—but no net shift of resources out of agriculture. Indeed, the total farm labor force increased as a result of clogged farm-city migration and urban unemployed seeking refuge on farms.

In the industrial field output was effectively reduced and prices were maintained well above those of farm products. But that did not spell prosperity for industry either. In terms of economic equilibrium analysis, the supply adjustment to the current demand was nearly perfect—but it was an adjustment to a shrunken and badly distorted demand.¹² It was more like reestablishing the physiological equilibrium of a cancer patient by letting the person die rather than by removing the cancerous growth.

¹² J. M. Keynes has demonstrated how a free enterprise economy could maintain equilibrium at almost any level of employment. See his *General Theory* . . . , Ch. 3 on the "Principle of Effective Demand," and Ch. 18 on the "General Theory of Employment Restated."

Although total food consumption remained at pre-depression levels, there was widespread under-consumption of food during the thirties among millions of unemployed and low-income families. The nation's food supply was so unevenly distributed that about two-thirds of the families were moderately or seriously undernourished, while the other third consumed (or at least purchased) substantially more than they needed for a liberal nutritionally adequate diet.¹³ Food waste in restaurants and in well-to-do families accounted for a substantial part of total food disappearance.

It is not difficult to imagine what would have happened if food production would have been reduced by say 20%, and food prices would have stayed on a level comparable with steel and fuel and most durable consumer goods. Many million more families would have gone hungry, demand for non-agricultural goods would have dropped still lower since food would have taken a larger share of consumers' expenditures. An economic and social upheaval would have engulfed the nation, from which farmers would not have been spared. A really effective food production control during a depression would not lead to farm prosperity, not even to a "balanced depression," but to wholesale starvation and revolution.¹⁴

A depression distorts the demand structure in the first instance, and most major supply maladjustments are derivatives of that distorted demand. Net capital formation ceases, not because of lack of savings, but because of lack of demand for investment. Unemployment rises, not because workers have so much that they need not work for a while, but because employers have no demand for them. Food prices dive faster and deeper than most other prices not because people want less food, but because they do not have the money to pay more for it. Demand and supply are not like the hen and the egg—we do know that the demand came first.

Most "production adjustments" which seem economically desirable during a depression should be under strong suspicion of representing an adjustment to a maladjusted, abnormally shrunken

¹³ In 1942, a year of nearly full employment, that proportion was reversed, with only one third of the diets failing to meet nutritional standards of adequacy. See National Research Council, *Inadequate Diets and Nutritional Deficiencies in the U. S.*, Bul. 109, Nov. 1943; and *Family Food Consumption in the U. S.*, U.S.D.A., Misc. Publ 550, p. 25.

¹⁴ To "balance out" a depression between the farm and non-farm segments of the economy, it would be much more sensible to induce maintenance of non-farm output than to reduce farm production. See M. Ezekiel, *Jobs for All*. A. Knopf, New York, 1939, for some thought-provoking ideas on how to maintain industrial output.

demand. If that suspicion can be verified, adjustment programs should be applied to the demand side, especially in the case of so essential a product as food. Food consumption cannot be "deferred" without serious sacrifices in health and morale of a population, and the margin of nutritional safety in the diets of the majority of families is precarious indeed.

What policy measures are available, within the general framework of the present socio-economic order of the United States, to bring about desirable adjustments in the demand for food?

Maintaining Effective Food Demand

There are various means for maintaining food demand in face of declining national income.

Any transference of income from higher to lower income families has the effect of strengthening the demand for food, because of the higher propensity to consume food in the lower income brackets. Increases in wage rates and social security benefits, replacement of excise and sales taxes by income taxes, and public deficit financing work in that direction. These measures tend to sustain prices for consumer goods in general (of which foods are a part), but do not aim specifically at maintaining the effective demand for food.¹⁵

General Food Consumption Adjustments

It is possible to earmark income transferences for general food expenditures and thereby assure that a major part of the public funds thus transferred is spent on food.

1. The *School Lunch Program* is of such a nature. The funds contributed by the government represent supplemental income received by the families of participating students in the form of food. Probably a substantial part of these funds represents a net addition to the nation's food expenditure. That addition is large, when the incomes of the participating families are low, and the amounts charged students for meals are small.

At present the scope of the School Lunch Program is rather restricted; for 1946-47, about 75 million dollars were appropriated out of Federal funds. Participating schools match the Federal

¹⁵ For a cogent discussion of general consumption adjustment measures designed to maintain aggregate effective demand, see J. H. G. Pierson, "The Underwriting of Aggregate Consumer Spending . . .," *American Economic Review*, March 1944, pp. 21-55.

funds from state or local contributions in cash or kind.¹⁶ A considerable part of the local contributions are recovered by prices for lunches. Moreover, part of the food now purchased by the schools would be purchased by the individuals in the absence of the school lunch service. We may not go too far astray if we assume that most of the Federal contributions, but hardly more, represents a net addition to aggregate food expenditures under present conditions, or less than two tenths of one percent of the nation's total food bill.

Potentially, however, the School Lunch Program could be expanded to strengthen total food demand significantly. If all students enrolled in public grade and high schools were offered a mid-day meal free of charge, the program would require public funds, (federal, state, and local) of around 900 million dollars at food prices prevailing in 1945.¹⁷ If 30 percent of this amount would constitute a net addition to total food purchases, it would represent an increase of about 1.2 percent over the retail value of all farm food products. Since the supply and demand elasticities of food as a whole are quite low, the bidding away of even so modest a portion of the food from the rest of the population (especially the higher-income families) would have a more than proportional effect on food-prices and at the same time improve the distribution of food with respect to nutritional needs. Apart from such a general price stimulating effect, the School Lunch Program offers the most effective disposal outlet for foods procured by the government under price support operations. In this way, the program can be used to achieve demand (and price) adjustments in the market of individual foods.

2. Establishing a *nutritional floor* below which no family would need to fall would stabilize aggregate food demand at a level higher than would otherwise prevail even under full prosperity conditions.

¹⁶ All states with a per capita income equal to or higher than the U. S. average (\$1,117 for 1946-47) must match federal funds equally; in all states below that average, the percent of matching required is the State's per capita income as a percentage of the U. S. average. See section 7 of "National School Lunch Act," Public Law 396, 79th Congress.

¹⁷ Of the total enrollment of 27 million students, 20 million could be expected to participate. Assuming 180 school days and a cost of 25¢ per meal, total cost under the program would amount to 900 million dollars. If 60 percent of this cost represents the food value of the meals, the program would entail a food expenditure of 540 million dollars. If half of this amount would be spent for the children's luncheons by their families directly in the absence of the program, the net addition in food purchases would be 270 million dollars, or 1.2 percent of the retail value of farm food products of 23 billion dollars in 1945.

This is the purpose of the National Food Allotment Program proposed by Senator Aiken in Senate Bill 1151 of the 79th Congress (re-introduced as S.131, 80th Congress). Every American family would be entitled to receive an income supplement sufficient to bring its food expenditure up to where it can buy a low-cost adequate diet. The bill provides that a family can purchase for 40 percent of its income food coupons whose face value equals the current retail cost of such a diet. The difference between the family's contribution and the cost of the diet is borne by the government. Families whose income is more than $2\frac{1}{2}$ times the cost of the "food allotment" would find no advantage in participation. Under normal conditions, the cooperating families would be free to buy with their coupons any foods they choose.

The public funds required for such a program would vary greatly according to business conditions in counter-cyclical direction. The program could be confidently expected to keep farm food prices as a whole at or above any reasonably defined "parity level," and would, therefore obviate many farm relief or price support expenditures which otherwise would have to be incurred.¹⁸

Both these programs could stand on their nutritional and general welfare merits alone. Whether food surpluses are clogging the market or not, these or similar programs could be justified purely on grounds of national health and productivity, and their cost be considered as a highly productive investment in the nation's human resources. They would place food in a similar position as elementary education; a minimum adequate amount of it would become the

¹⁸ See R. Schickele, "The National Food Allotment Program," this JOURNAL, May 1946. See also W. W. Cochrane, *High-Level Food Consumption in the United States*, U.S.D.A., Misc. Publ. No. 581, 1945. The effect of such a program on food prices would be more than proportional to the additional food expenditures by the participating families. Since the non-participating families are those in the higher income brackets, their demand elasticity with respect to price is low. As the participating families bid for more food, the others are willing to pay higher prices in an attempt to maintain their consumption rates. The result would be that not only the cooperators, but also the non-participants, would increase their food expenditures. Over-all food production would probably not be affected materially. If a 60 percent drop in farm prices during the last depression did not bring about a reduction in food output, and if it took almost a 100 percent increase in farm prices, a sequence of exceptionally good crop yields, a high stockpile of feed grains, and an intensive patriotic campaign to increase food output by one third during the war, the price effects of such consumption programs upon the over-all food supply are bound to be negligible. They can be expected, however, to stimulate output expansion in some foods (e.g. milk and meats) at the expense of other products (e.g. potatoes, wheat and beans), because of their differential effects on prices of various foods.

birthright of every citizen. Their effect on the productive, social, and mental capacity of the population would be similar to that of education and public health services.

In economic terms such programs represent adjustments on the demand side of the market with respect to activating latent demand for food on the part of people with urgent nutritional needs, and in the direction of maximizing aggregate utility derived from food consumption. They are discussed here merely as examples of policy measures designed to remedy maladjustments in the demand structure. Economic policy discussion would do well to explore the possibilities in this field more intensively and systematically.

Measures along these lines are effective weapons to fight off over-all food surpluses—or putting it another way, to stabilize farm prices as a whole at a level reasonably profitable for farmers.¹⁹ They are not directed at specific kinds of food; hence, surpluses of certain individual foods might still develop.

Consumption Adjustments for Specific Foods

In the absence of a large-scale general food consumption adjustment program it is quite possible that many different individual foods will appear in "surplus" during some periods in the next few years; and it is certain that the diets of millions of families will be acutely deficient in several specific foods for many years to come.

Hence, consumption adjustments for specific foods can serve two purposes: (1) relieving a surplus condition, and (2) improving nutrition. Should these two objectives ever come in conflict, the second should over-ride the first. I believe, however, that such a conflict need arise much less frequently than is claimed by some students. Perhaps with the exception of cornmeal and bread, most foods that may appear in surplus are found wanting on the tables of a sufficiently large number of families, or are sufficiently substitutable for other foods, to find a nutritionally desirable use if channeled to the right people and in appropriate amounts.

Direct food distribution is one way to correct consumption maladjustments. The government purchases certain foods and distributes

¹⁹ It has been estimated that if a food allotment program had been in full effect in the mid-thirties, the parity ratio would probably have stayed close to or even above 100, instead of falling down to the 60's and 70's. But wheat and potato prices would still have fallen well below parity as now determined. The demand for dairy and poultry products, meat, vegetables (except potatoes) and fruits would have been strengthened most, while that for wheat and potatoes least.

them to various groups of the population, either free of charge or at reduced cost. This represents a transference of foods from people able to pay but in little need for them, to people unable to pay but in urgent need. Substantial quantities of food have been thus distributed by the U.S. Department of Agriculture through relief agencies, school lunch programs, and various state and local institutions. The selection of these foods was, and still is largely determined by their surplus position in the market and is, therefore, closely tied to price support operations. Still, the effect of direct food distribution upon the diet of the recipients is on the whole beneficial, and from a social-economic view point much more desirable than the alternative of diverting those foods to non-food uses or waste.²⁰

There is also a need for strictly *nutritional consumption measures* for certain crucial foods and certain "vulnerable" population groups, such as milk and oranges for expectant and nursing mothers and infants, penny milk stations and low-priced public eating places in industrial centers. The selection and quantity of foods distributed under such programs should be largely independent of the relative supply position of those foods at any particular time and place. The United Kingdom during the war has developed such food programs on a large scale.

Issuance of food stamps to needy families is another means for channeling specific designated foods into consumption. In the Food Stamp Program, the blue stamps were restricted to purchases of foods on a surplus list.²¹ A provision in the Food Allotment Bill would permit the Administrator to designate a limited number of food coupons for the purchase of certain foods which are either in surplus or peculiarly deficient in the diets in certain areas or groups of participants.²² If judiciously applied, such measures could probably increase consumption of a few foods in acute surplus or

²⁰ The fact that at one time Californian children revolted against all the prunes in their school lunches, and a few boys of relief clients played baseball with the grapefruits that had been distributed to them, does not condemn the School Lunch and Direct Distribution Programs as such; it only condemns the neglect of nutritional consideration and education with which those seasonal surpluses were distributed. If these surpluses would have been spread over more families, wider areas and longer periods of time, the nutritional conflict would have been avoided.

²¹ See Gold, Hoffman and Waugh, *Economic Analysis of the Food Stamp Plan*, USDA, Special Report, 1940.

²² See S. 131, 80th Congress, 1947.

improve the nutritive composition of certain diets quite substantially.

"*Abundant food campaigns*" represent a consumer education program which, if conducted on a large scale with imaginative publicity and the cooperation of retailers, might well have a beneficial effect upon demand and price of certain foods in acute surplus position.

In contrast to general food surpluses (the remedy of which should be sought almost entirely in adjusting over-all food demand), correction of individual food surpluses should often place at least equal emphasis upon supply adjustments.

Individual food consumption programs strictly for purposes of surplus relief should be kept to a minimum and must be appraised in their effect upon price and output as well as upon nutrition. If their scope is too small to affect the price, they do not relieve the surplus; if their scope is large enough to affect the price, they may affect production in economically undesirable ways.

The principal criteria for appraising individual food consumption programs may be summarized as follows:

1. If a surplus appears to be of a *local or seasonal character*, and if the support price is not out of line with costs and other food prices, direct distribution to low-income families, schools and institutions, or food coupons earmarked for that surplus food, may represent worthwhile consumption measures. Direct distribution of government-purchased food has many administrative, social and economic drawbacks; earmarked food coupons under a Food Allotment program could probably move much larger quantities into consumption, but would also complicate the administration of the program. As long as such consumption programs have no greater effect on price than keeping it from falling below its appropriate relation with other prices, no undesirable production effects will ensue.
2. If *many foods appear in surplus simultaneously*, such individual consumption programs are not likely to do the job. General food consumption adjustments would be more appropriate.
3. If *a surplus threatens to become chronic* because the support price is too high relative to costs and prices of other foods, the support price should be lowered, and farmers should be assisted, if necessary, to lower their production costs and/or to shift to other products. *Individual food consumption programs are not appropriate means for relieving chronic surpluses of individual foods and maintaining the incomes of the respective farmers*; specific production and price adjustments are required.
4. An alternative to these specific food consumption programs would be

to let prices drop so low that the regular market absorbs the total supply, and to compensate the farmer by means of *supplementary payments* covering the difference between the market and the support prices.²³ I am inclined to believe that this alternative is in many cases economically and administratively preferable to specific food consumption programs. If this measure is applied to temporary surpluses of a few foods at a time and based upon a reasonable support price, its production effects will not be harmful, and its public cost not exorbitant, although probably higher than the simplest form of surplus purchase and disposal. The nutritional effect of supplementary payments would be inferior with respect to improving food distribution according to need. No production control conditions should be attached to supplementary payments if the surplus is temporary and the support price in line with other prices; in case of chronic surpluses, the support price should be reduced, and supplemental payments should be made subject to shifting some of the resources into other products—lest they contribute to the perpetuation of the surplus.²⁴

Agricultural surpluses may arise from maladjustments in demand, or supply, or price, or any combination of these. If prices are supported higher than necessary to yield reasonable profits to producers, the surplus condition can be relieved by reducing support prices. If surpluses arise under free market conditions, effective demand will be found wanting more often than supplies excessive, as long as millions of families fail to reach minimum adequate standards of consumption in many essentials for a decent living.

For more than a decade has American production capacity in agriculture as well as in industry has outrun effective demand. Why should we tailor our production capacity to the stunted demand patterns of the past, rather than tailor our consumption capacity to the full-blown supply patterns of the future?

²³ See T. W. Schultz, *Agriculture in an Unstable Economy*, McGraw-Hill, N. Y., 1945, pp. 220-236; and R. F. Eggert and O. H. Brownlee, "Advantages and Disadvantages of Direct Payments to Farmers," this JOURNAL, Feb., 1947, pp. 250-260.

²⁴ In case of over-all food surpluses under depression conditions, supplementary payments would probably be much inferior to general food consumption supports in almost every aspect—nutritionally, economically, socially, administratively. They would represent a food budget subsidy for the rich as well as the poor, would still leave millions of families in want of food, and would benefit the large-scale well-to-do farmers disproportionately more than the small less-highly commercialized farmers. It is quite possible that their federal cost would exceed the cost of a full-fledged program of general food consumption adjustment.

The most constructive use of supplementary payments is in the field of production adjustments and forward pricing for individual farm products.

LAND ACQUISITION PROGRAM OF THE WAR AND NAVY DEPARTMENTS, WORLD WAR II*

ALVIN T. M. LEE

Bureau of Agricultural Economics

THE outbreak and spread of war in Europe demanded large acreages of land within the United States for the expansion and training of the Nation's military and naval forces. Land was needed for training camps, airfields, bombing and artillery ranges, ordnance plants and depots, and many other activities of war. Until 1940 the Nation had not used extensive acreages of land for war purposes. However, within the following $2\frac{1}{2}$ years more privately owned land was purchased by the Federal Government than ever before in a comparable length of time. At the same time, much Federal land that was under the jurisdiction of agencies other than the War and Navy Departments was made available for military training.

Acquisition of extensive acreages for war uses brought with it many problems. Buying of large areas of agricultural land meant a mass movement of people out of the areas purchased. This in turn disrupted community organizations, school districts, and other local governmental units, as well as causing hardship among the families affected. When hundreds and thousands of workers flocked to new industrial areas which had been mainly rural before, it became necessary for the Federal Government to provide financial help for the construction of new roads, schools, and other public facilities. Housing projects, mostly temporary in nature, had to be erected at Federal expense to provide for the many new workers.

Wartime acquisition of land by the Government is necessarily different from normal peacetime acquisition. During war it is more hurried and is done with more positive powers. There is little time to consider alternatives. Occupants must move quickly, and this is often a hardship. Other large-scale governmental purchases of land—the program for retirement of submarginal land in the 1930's, the buying of land for reservoirs and power projects by the Tennes-

* This article is based on a comprehensive report by the writer, entitled *Acquisition and Use of Land for Military and War Production Purposes, World War II*. It is one of a series of war records studies published by the Bureau of Agricultural Economics.

see Valley Authority, the flood control programs, and the establishment of national forests or parks—at times have meant similar problems for individuals and communities. But during those acquisitions more time could be taken for negotiations with individuals, and often as in national forests it was not necessary to buy all of the private ownership tracts within the purchase area. In the war projects it was necessary to buy quickly all properties within a given area.

The efforts of both the War and Navy Departments to locate their larger projects on land of relatively low productivity did much to prevent inroads on the Nation's agricultural production. In addition, the large "outleasing" programs of the War Department returned to agricultural use much of the good farm land in the safety areas around ordnance plants and other projects. Co-use or alternate use of the large training areas in the West made it possible to conduct extensive military use of the range while at the same time permitting a maximum use of the grass for beef production.

The Nation has long engaged in the purchase of privately owned land for the creation of new public purpose projects and will continue to do so in the future. Possibly the greatest need in the near future will be the acquisition of land for reservoir sites needed for control of floods. Projects already planned will require that upwards of 30,000 farm families be forced to move.

Another continuing need is the return of potential timber land to public ownership unless measures are developed which will prevent the wasteful exploitation of forest resources under private management.

Because of the continuing need for the purchase of land for public purposes it is desirable that one of the major Federal land purchase programs—acquisition of land for military use—be reported on, so as to obtain a better understanding of the many problems associated with such large-scale governmental activity.

Real Estate Acquisition

On June 30, 1940, just before the beginning of the large expansion occasioned by World War II, the Navy Department had 499,961 acres of land and the War Department 2,116,862 acres, making a total of 2,616,823 acres within the continental United States held for national defense by the two Departments.

During the period of World War II these Departments bought about 6½ million acres from private owners and leased about 9½ million acres from individuals, municipalities, and state governments. In addition, slightly more than 33 million acres of Federally owned land that had been under the jurisdiction of other Federal agencies were made available for military use and war production purposes (table 1).

TABLE 1. SUMMARY OF OWNERSHIP STATUS OF LAND USED BY WAR AND NAVY DEPARTMENTS DURING WORLD WAR II

Item	War Department	Navy Department	Total	
			Acreage	Percentage of total
Owned as of June 30, 1940 ¹	<i>Acres</i> 2,116,862	<i>Acres</i> 499,961	<i>Acres</i> 2,616,823	<i>Percent</i> 5.0
Purchased during World War II	5,728,876 ²	1,017,080 ³	6,745,956	12.8
Other Federally owned under temporary use arrangements	28,340,132 ²	4,739,753 ⁴	33,079,885 ⁵	62.7
Leased from private individuals, State and local governments	9,685,031 ²	600,000 ⁶	10,285,031	19.5
Total	45,870,901	6,856,794	52,727,695	100.0

¹ Unpublished Inventory of Federal Real Estate by Federal Works Agency, Public Buildings Administration, as of June 30, 1940.

² From unpublished tabulations, Real Estate Branch, Corps of Engineers, War Department, as of November 30, 1946. Includes lesser interests.

³ Land Acquisition Report, July 1, 1940, to June 30, 1945, Real Estate Division, Bureau of Yards and Docks, Navy Department.

⁴ Report of the Commissioner of the General Land Office, 1945, tables 9 and 24; unpublished statements obtained from U. S. Forest Service and Soil Conservation Service.

⁵ Acreages made available by various agencies may be obtained from these agencies. The principal agencies were: Grazing Service, General Land Office, National Park Service, Bureau of Reclamation, Fish and Wildlife Service, all in the Department of the Interior; and the U. S. Forest Service and Soil Conservation Service, in the Department of Agriculture.

⁶ Estimates based on incomplete data on acreage in report "Leases as at 1 January 1945," Navy Department, Bureau of Yards and Docks, Real Estate Division.

The building of a huge Army and Navy and training and equipping them according to latest technological developments demanded large areas of land from coast to coast for training and ordnance production. Highspeed fighter planes and high-altitude bombing claimed larger areas of land for military training than the Nation had ever needed before.

Military camps and artillery ranges usually have from 25,000 to

100,000 or more acres, depending upon the type of training to be pursued. Armored divisions cannot safely conduct maneuvers and gunnery practice on less than 100,000 acres. Aerial training requires from 640 acres for precision ground bombing to many thousands of acres for more extensive training in flying and in operating fighter planes and in air-to-air gunnery practice. Ordnance plants and storage areas usually range from 5,000 to 10,000 acres to allow for a safety zone around the major installations; some ordnance and shell-loading plants and depots need larger areas, depending upon the type and scale of operations to be carried on. Airfields range from about 160 acres for auxiliary landing fields to 2,500 acres or more for the main fields at which the facilities are located and the personnel stationed. Special areas for testing rockets and atomic weapons are larger than those needed for any of the conventional types of military training.

The final location of military and ordnance sites throughout the Nation was determined by climate, availability of labor and material resources, and defense strategy. Many camps were located in the South, because year-round training could go on there and because of lower costs of construction and building maintenance. Scattering the ordnance sites throughout the Nation was partly to tap the resources and partly to avoid undue concentration which would endanger supplies in event of attack.

The War and Navy Departments had previous plans for many of the sites selected during the war, but much current planning was still needed. State agencies, such as the State Planning Boards, worked up general information to indicate the suitability of certain areas for military and industrial projects. Federal land management agencies, such as the Forest Service and agencies in the Department of the Interior, were asked to assist the War Department in selecting areas suitable for certain types of training. Suggestions for site locations came in also from such organized groups as chambers of commerce and from individuals.

The Plant Site Board in the Office of Production Management passed upon the selection of industrial sites for Government-financed plants. One of its objectives was to prevent undue concentration of industry in areas that were already highly industrialized.

The selection of one community over another with the same qualifications was due in part to pressure brought to bear by local interests. Local businessmen through their organizations attempted

to have a war industry located in their town or to have a camp established nearby because of the expected increase in pay rolls and in trade. But the landowners who were to be bought out often protested as they did not want to lose their farms and homes. Local interests were thus sometimes working at cross purposes. This point is illustrated by the comments from a county agent:

Our fine relationships between rural and urban groups have been strained considerably, since the agricultural area still feels bitter toward the civic organization for having suggested this area for a plant site. It is going to take a long time to get back the harmony that once existed.

When the tentative selection was announced there often was a public reaction which made the purchasing agency reconsider. Sometimes another of the alternative sites was chosen. However, the necessity of speed allowed little time for discussion and giving way to local pressure regarding one site would encourage occupants of other tentative sites to carry on endless discussion and negotiations, impeding the war program. Apparently neither the War nor Navy Department found it possible to change its decision in many instances. This is evidenced by the adherence to original decision on many of the sites even where there was much public protest.

Types of Interest Acquired in Land

The War Department initiated a policy of acquiring merely leasehold interest in land during the early period of the war. It leased the properties in several camp sites throughout the South. Soon the former occupants who had been forced to move suggested that the Government buy their properties outright. It seemed better to them to sell out completely and relocate elsewhere than to shift around, hoping to come back at an unknown later date. Most of the individual properties were so small, or inferior that the rentals were not large enough to reestablish the families in another locality.

It was more advantageous to the Government as well as to landowners for the Government to acquire fee ownership of the many improved properties needed. The provision that the Government restore the properties to their original condition upon termination of the lease or pay damages often would have cost more than the purchase price of the land. For this reason, leasing was later limited primarily to unimproved properties, such as forested tracts in the South and grazing land in the West. Other classes of leased

properties were the National Guard Camps, belonging to the States, and airports, belonging to municipalities. In the location of many airports, arrangements were made whereby a municipality would buy the land and the Federal Government pay all construction costs. The Federal Government often bought additional land to enlarge airports that were leased from municipalities. Under these arrangements the original airport facilities as well as the expansions were to revert to the municipality when no longer needed for the war.

Some of the land obtained under lease in the Western States was State owned. These State lands in most instances were intermingled with the Federally owned land made available. It was necessary to lease State lands because of the temporary nature of many war projects and the legal restrictions or reluctance of States to sell. In some States an attempt was made to exchange these intermingling State lands for Federal land located outside the military project. In the Eastern States most of the leased land was owned by individuals. In the South, too, the land obtained under lease was usually private land in large timber tracts, in many instances belonging to paper and lumber companies or turpentine operators.

The War and Navy Departments made a concerted effort to utilize land already Federally owned in locating camps, bombing ranges, and ordnance depots, if this land could serve the purpose as well as alternative locations. Land management bureaus and agencies of the Departments of Agriculture and Interior cooperated extensively in making Federally owned land under their jurisdiction available for military use. Special procedures made these lands available in the interests of the war while protecting civilian values in the land.

Use of lands already in Federal ownership expedited the land acquisition program and held to a minimum the disruption of local economic activity connected with wholesale evacuation of populated areas. This reduced the work of surveying individual properties, negotiating with individual owners, and the almost endless task of searching titles and closing the purchase transactions. All these costs as well as the purchase price of such land were eliminated. An additional advantage was the availability of up-to-date ownership records and usable maps of the lands involved, and the existence of roads and other facilities which expedited immediate military use. Use of existing Federally owned land held

to a minimum the heartaches, the confusion, and the bewilderment of people forced to evacuate against their wishes.

The type of interest acquired in the land and the methods of obtaining the needed acreage depended upon the ownership status and the contemplated use of the land. In many of the projects located on land a portion of which was Federally owned before the war, there were scattered private holdings that had to be bought. Such properties in national forests in the Eastern States had not been bought earlier because they were more economically suited to farming than to forestry. In the Western States, homesteaders had effectuated a scattered homestead pattern and in many instances settled on the better lands where they could get water, thus leaving the poorer lands to be held by the Government. These private holdings now had to be bought so the occupants could be moved from the area.

Needed Federally owned land under the jurisdiction of other Federal agencies was made available for war use under various arrangements—chiefly by Executive order, public land order, and letter of permission usually called “use permit.” Some sites were made available by act of Congress. Lease and suspension agreements developed as a result of legislation passed in 1942 made it possible to pay ranchers for the value of their rights in Federal land.

Kind of Land Bought

Publicly owned land transferred or leased for temporary military purposes and land leased from individuals was primarily in forest use or grazing use before the war. Land that was bought from private ownership, however, had a wider range of uses and represented land of higher use capabilities. Of the land bought from private owners about one-fourth was in cropland use, one-third in pasture and grazing use, another third in woodland and forests, and the remainder in miscellaneous use (table 2). These were the major uses; they were not necessarily the best uses nor the uses in which the land would yield the most satisfactory returns to the operator.

The kind of land acquired was determined largely by type of project to be located in the area. Ordnance plants and depots, storage areas, airfields, and enemy alien camps were usually located on open agricultural or grazing land. Military camps and proving grounds were usually located in areas having a low proportion of cropland. Because of the necessity of acquiring all the land

within the designated boundaries it was to be expected that all types of land would be found in most of the sites. The land acquired for military use represented all types of agricultural use as well as a wide range in agricultural productivity.

TABLE 2. MAJOR USE OF LAND BEFORE PURCHASE BY THE WAR AND NAVY DEPARTMENTS, WORLD WAR II PURCHASES¹

Item	War Department	Navy Department ²	U. S. total
	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>
Cropland	1,434,229	272,510	1,706,739
Pasture and range	2,061,705	413,079	2,474,784
Woodland and forest	1,888,028	269,085	2,157,113
Swamp, waste, urban, and miscellaneous	218,496	62,406	280,902
Total ³	5,602,458	1,017,080	6,619,538
	Percentage of total		
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Cropland	25.6	26.8	25.8
Pasture and range	36.8	40.6	37.4
Woodland and forest	33.7	26.5	32.6
Swamp, waste, urban, and miscellaneous	3.9	6.1	4.2
Total	100.0	100.0	100.0

¹ Classification made, in fall of 1943, cooperatively by War, Navy, and Agriculture Departments, and State agricultural colleges.

² Sites the Navy believed would become permanent installations were not classified. These totals derived by multiplying total acreage bought by the percentage arrived at in distribution of classified acreage; done separately for different parts of the country to obtain maximum accuracy.

³ As of Jan. 1, 1945. Does not include easements and other lesser interests as is done in table 1.

Ordnance plants have site location requirements that nearly always placed them on the best land in the community. They had to be located on land that could be excavated deeply and easily for the placement of heavy foundations. Deep soil had another advantage in that it would not carry explosive shocks as far as land with shallow rocky soil. Adequate main line transportation, both railroad and highway, was necessary. The plants were usually adjacent to rivers, so as to have an abundance of water. The large amount of hauling to be done demanded also that the land be reasonably level. The site had to be located in open country for safety yet close enough to population centers to insure an adequate labor supply. Construction of buildings, highways, and railroad spurs,

and plant operation are costly under the best conditions, but could be held to a minimum if sites with deep soil and level land were selected. Even in the best agricultural areas, such as Sangamon County in Illinois, the cost of land acquisition represented only about 2 percent of the total cost of the installation. This is a main reason why construction authorities gave relatively little consideration to agricultural productivity when deciding between alternative sites.

Ordnance depots, shell-loading plants, and storage areas do not need to be near abundant water supplies. Aside from this, they have the same requirements for site location as the ordnance plants.

Airfields were located on land as good as that for ordnance plants. Obviously, level land is required for runways. Most of the site as well as the adjacent land had to be open to avoid costly land clearing. A higher proportion of the land in airfields was used for crops before Government purchase than was true of ordnance and storage sites. This was because land of less variation in type and use was obtained for smaller sites, a condition even more true of auxiliary airfields than of the main airfields. Auxiliary and emergency landing fields usually require a small level area of about 160 acres, used only for landing purposes, while main airfields could use some less level land for barracks and grounds.

Prison and enemy alien camps contained a considerable proportion of cropland because it was intended that the occupants grow a part of their food.

Military camps and maneuver areas as a rule were located where there was a minimum of agricultural activity and so were on land not well adapted to crops. Exceptions are found in such instances as Camp Campbell in Kentucky and Tennessee, Camp Breckenridge in Kentucky, Camp Atterbury in Indiana, Fort Riley in Kansas, and Camp Adair in Oregon. In these camps from 50 to 70 percent of the land was used for crops.

Camp sites in the southern part of the country, from central Texas eastward, in most instances, were made up of land of which only from 10 to 20 percent was used for crops before purchase. Most of the land in the sites in these Southeastern States is covered with forest growth. Much of it is cut-over land of low productivity. In the southwestern part of the United States, from central Texas westward, the military camp sites were predominantly in grazing use before they were bought by the Government.

In nearly all instances, camps were located in areas with good transportation. Two railroads usually were required. It was considered an advantage also to have the camp within reasonable distance from sizable urban areas so that existing recreational facilities would be adequate and varied enough to meet the needs of large numbers of men.

Bombing and artillery ranges and proving grounds were located on the poorest types of land available. Of the 1,384,000 acres bought for this purpose only 7 percent was used for crops before the war. These sites in the western United States were located primarily in poorer grazing areas, and in the eastern United States they were located principally in extensive woodland areas.

Relocation of Families

On the basis of actual counts at a number of sites, it is estimated that approximately 60,000 rural families were displaced because of the wartime land purchase program. It is estimated that about 30,000 farms were brought. More families were affected in the South and East than in the Great Plains and the West. In most of the sites in the East and as far south as North Carolina, Tennessee, and Arkansas, the properties and farms were small. In some of the sites many small acreage properties were occupied by families the heads of which had work in nearby industry. Farther south, in many projects, there were more families than there were ownership units because several sharecroppers were on the same ownership tract. In the Great Plains and the West, the operating as well as the ownership units were large.

Hurried acquisition of large solid blocks of land creates a series of human problems which do not arise when single and scattered properties change ownership. Most important is the disruption of long-established economic and social activities of the many individuals which give life and meaning to the community. Thus the purchase of large areas affected all the citizens of the community. Evacuation of all occupants and their belongings had to be complete to make way for the conversion of large areas to new uses—army camps, ordnance plants, airfields, proving grounds, and other war purposes. This meant that farm tools and household goods had to be piled on wagons, trucks, and trailers, and that all livestock had to be herded out or hauled out of the area.

A varied program of assistance was needed to relocate many of

the families who were bought out. Some were able to relocate without any assistance, some wanted only information as to relocation opportunities, others needed both information and financial assistance, while the incapacitated needed help in the physical job of moving, in addition to information and financing. Since there was no compensation for disturbance it is certain that the displaced families suffered varying amounts of financial costs as well as the physical hardships and the more intangible heartaches and inconvenience that go with the process of being forced to sell one's home and to sever community ties.

The proportion of the families falling into the needy groups depended much upon the productivity of the land and other local resources. At Fort Leonard Wood in Missouri, for example, 304 families were displaced. As this is typical Ozark Mountain land, it is to be expected that the families would not have accumulated much material wealth. It was found that 45 family units, or 15 percent, were obtaining old-age assistance or aid for dependent children at the time of purchase. Another 30 percent did not have enough equity to qualify even for standard Farm Security Administration loans. Thus, 45 percent of the family units needed substantial outside aid to finance the cost of moving.¹

Fewer families were dependent upon the public for relocation assistance in the more productive areas and in the areas where the type of land use and ownership was in adjustment with the type of resource. Slowness in getting paid for the land was the chief reason families displaced from such areas had to have loans.

Work of County Agricultural Planning Committees

The county agricultural planning program that was in existence during the early war years (1939-42) and later the county war boards served as a medium for solving relocation problems. This program, sponsored by the U. S. Department of Agriculture in cooperation with the State agricultural colleges and State and County Extension Services was an effort to bring together the farmers and the several agricultural agencies in the counties to work in unison on problems affecting the use of land and the welfare of farmers in these counties. Major efforts were spent on projects

¹ Albert H. Mussman, Unpublished manuscript. *Implication of Land Use Adjustments in Connection with the Defense Program*. Bur. Agr. Econ., U. S. Dept. Agr., July 1941.

that furthered the war. Family relocation on the scale required by military land purchase was a tangible problem of planning for this group to work on. In some counties, as in Des Moines County, Iowa, it was decided that this problem would have the immediate attention of the agricultural planning committee.

The county agricultural planning committees or war boards were made up of county representatives of agricultural agencies and local farmers. Their activities on relocation problems consisted essentially of (1) dissemination of information; (2) surveying relocation needs; (3) listing of trucking, storage, rental, and related kinds of services available; (4) making lists of farms for sale; and maintaining an information office.

Work of the Farm Security Administration

In many areas the Farm Security Administration was the first to come to the assistance of families whose land was bought by the Government. FSA activities on such relocation problems started concurrently with the land purchase program in 1940, and were most extensive in the South. As many of the camps were located in poor land areas, the occupants usually included many who were in dire financial circumstances. The FSA was the only agency with an already-operating program designed to give adequate aid to this needy group. It had authority to extend loans with a minimum of security and to make grants to individuals having no security nor possibility of repaying.

Grants to low-income farm families to help defray moving costs and to provide temporary sustenance were not to exceed \$100 per family except in extreme cases, and were to be used for covering expenses incidental to moving, immediate subsistence, buying of materials for temporary shelter, and paying of rent for housing for a period not to exceed 6 months after relocation. Most of the grants were made in the three States of Georgia, Alabama, and South Carolina—3,071 grants averaging \$50.60 were made in these three States.² Up to July 1, 1942, the FSA had made relocation grants to 4,200 families and had assisted 235 to obtain farms through State relocation corporations, in addition to the other kinds of assistance given.

The efforts of the Farm Security Administration to develop a

² *Hearings Before the Select Committee Investigating National Defense Migration*, Part 32, Huntsville Hearings, May 7 and 8, 1942, 77th Cong., 2d sess., p. 12061.

comprehensive program to help relocate displaced farmers through State Defense Relocation Corporations warrants special mention. For States in which there were at least 25 low-income farm families to be relocated on farms, regional FSA administrators had authority to establish corporations that would buy or lease lands and develop them for these people. Relocation corporations were set up in 17 States and in all 339,222 acres were acquired.

The normal operations of FSA were considered inadequate for the needs of the many farm families who were being forced to leave their farms. It was thought that "relocation of displaced families on a sound basis could be achieved only through acquisition and development of tracts of land sufficiently large and well-disposed to make possible planning and development of profitable and varied forms of operation."³

One of the objectives of the relocation corporations was to hold to a minimum any secondary displacement, such as would occur if farm tenants elsewhere would be forced to move because the farms they were on were sold to families moving out of Government purchase areas. The corporations tried to buy land that could be developed into additional farms. Much of it was under nonresident or corporate ownership. As an example, the 41,845 acres of Bates County land bought from the well-known Scully Estate had 156 families living on it. Plans called for subdividing the land into 382 family-sized farms, which would have provided farms for an additional 226 families.

Annual sale of land by the State relocation corporations indicates that only a small amount of this land was sold to displaced families. There were several reasons for the comparatively small volume of sales.

1. Most of the land was undeveloped and needed special improvement before it was suitable for sale in family-sized farm units.
2. The restriction of the War Production Board on sale of building material imposed subsequent to the initiation of this relocation program prevented the construction of new buildings and the establishing of new farms as originally planned. Only a few sets of farm buildings were put up.
3. As it was FSA policy to hold to a minimum the secondary displacements, the tenants on the land bought by FSA were

³ Huntsville, Alabama, Hearings. Op. cit., p. 12060.

allowed to remain as the farm units that had buildings were not sold to new buyers.

4. Relocation activities through State defense relocation corporations were stopped by an opinion rendered by the Comptroller General of the United States on March 5, 1942. He held that these activities were not within the scope of FSA appropriations. In addition, the Appropriation Act of 1943 directed FSA to stop direct loans for land purchase under the rehabilitation program except where directly specified under separate acts, such as the Bankhead-Jones Act and the Wheeler-Case Act.
5. When these activities were halted, the corporations were in the midst of clearing titles and other work involved in the purchase of land. It took time to settle the legal difficulties that arose in connection with the commitments made by the corporations, so a large part of the land they had bought could not be resold until 1944 and 1945. Because of lack of development funds, the land without farm improvements was sold during this later period to the highest bidder, with or without subdivision.

Extent to Which Families Became Relocated

As the bulk of land purchase activities of the War and Navy Departments took place in 1941 and early 1942, most of the displaced families who had adequate resources were not faced with a dearth of farms for sale. The long lists which were on file in the county agents' offices attested to that. Insurance and mortgage companies, Federal land banks, private banks, and individuals had taken over many farms during the rapid decline in land prices in the early 1930's. Prices for farm land rose some between 1935 and 1940 but apparently not enough to induce all unwilling owners to sell. The rapid rise in land prices which started during the latter part of 1941 brought prices above investment values, and as a result credit institutions, whose policies were to liquidate as soon as they could do so without financial loss, started selling their farms. Farms held by estates were also more readily for sale after prices which could be obtained seemed more favorable.

Displaced farmers, as well as other farmers nearby, found temporary work on the huge construction jobs at the military camps and ordnance plants. Before the unemployment slack had all been

taken up, it was the policy of the Government to give jobs first to displaced families. Construction crews on the major projects often included 10 to 20 thousand workers and there were not that many displaced farmers in the respective areas. It was reported in some instances that a large proportion of the farmers in the county worked at these sites. Such work, however, was temporary and merely stayed off the final date of readjustment.

In the less productive land areas a high percentage of both owner-operators and tenants went to defense and war jobs. In these areas it was noticeable that not only displaced farmers but others were giving up farming for more profitable work at Government installations. Many county agents reported that wages at these sites were so high as to drain off all agricultural labor. These jobs alleviated the financial burden of relocation for the duration of the war.

Owner-operators who had substantial equity in their farms and wanted to continue farming were best able to buy the farms offered for sale in nearby communities. But one of their problems was the lapse of time between sale of the farms and receipt of payment from the Government. Those who wished to have in hand all the money needed to buy another farm may have passed by an opportunity to get a first-choice farm or may have been forced to pay more because the prices of land were rising. Many reports were received to the effect that as a rule farmers could not buy farms of equal value with the money received from the Government. Purchase of farms by the displaced farmers meant a heavy local demand for farms, and sent local land prices up above the general rise.

Tenants found it difficult to relocate on other farms because they usually had to move at a time of year when few farms were for rent. Then, too, the policy of not paying for disturbance and relocation costs meant that the tenants had to use their own money to pay for this unexpected cost.

In the early part of the wartime land acquisition program, an attempt was made to recognize the losses incurred by tenants because they had to move before the formal termination of the farm lease. Since there was no authorization to do so the Justice Department could not recognize payment for disturbance as a normal cost of land acquisition. Accordingly, the problem became one involving only the landlord and his tenants. An attempt was

made to have the landlord work out satisfactory arrangements with his tenant, and proof of such agreement made prerequisite to final payment for the land. The landlord was to pay the tenant the agreed sum out of the proceeds of the land sale. This arrangement did not seem practicable. The only equity recognized as belonging to a tenant was his pro rata share of the value of growing crops and cost of seedbed preparation. The limited resources of most tenants together with the difficulty of finding farms for rent forced them to get other work, at least, temporarily for one crop year if not longer.

Payment for cost of relocation would appear to be warranted for farm occupants but is most urgent for tenant families. Since the value of growing crops and seedbed preparation were the only real estate equities recognized to be in their possession, many had to move without receiving compensation of any kind. It was a real hardship. Tenants not only had the expense of moving but were unemployed until another farm was located or other work was found.

The Supreme Court ruling that the General Motors Corporation entitled to compensation for costs of moving apparently sets a precedent for the development of a policy which would give equal recognition to the costs enforced upon all property owners and tenants when their homes and land are acquired for public purposes.⁴

Community Problems

Many community problems arose as the Government bought large areas of land. Local governmental units, especially school and road districts, were dissolved or had to combine with other districts. Partially dismembered districts that were left that way had to reduce their services to the amount that could be supported by the reduced tax revenue forthcoming from the shrunken tax base. On the other hand, in areas where a great many workers moved in it became necessary to expand public service facilities.

The War and Navy Departments bought land in 782 counties. In only 37 counties was as much as 10 percent of the county's land area involved, thus indicating that relatively few counties suffered substantial losses in tax base. It was the smaller governmental units, such as townships and school districts, that suffered the

⁴ *U. S. vs. General Motors Corporation*, 323 U. S. 373; 65 S. Ct. 357; 89 L. E. D. 311 (1945).

greater loss in tax base. Up to January 1, 1945, there were 172 separate War and Navy sites that exceeded 5,000 acres in size. It is likely that the removal of a land area of 5,000 acres from the tax base would appreciably affect school and township finance. Off-setting benefits from increased pay rolls were not reflected in the tax receipts of local governmental units. Such benefits were primarily to individual merchants and as a result were reflected primarily in State revenue and Federal income taxes.

Closing of schools forced many children to attend other schools in the district or schools in adjacent districts. Township and county roads in the large training camp and ordnance plant areas usually had to be closed. The most necessary roads and State highways had to be relocated and at Government expense. Residents living on the edge of military reservations often had to travel several additional miles to reach neighbors or shopping localities on the other side of the reservation.

Road and school bonds usually are issued on the basis of entire taxing units. After Federal purchase, such indebtedness must be assumed by the remaining area in the district not bought by the Government. Outstanding indebtedness for roads and schools was one of the greatest obstacles to the consolidation of remnants of districts with those adjoining. Neither cared to assume those debts.

Electric power and telephone lines on land bought by the Government usually had to be relocated. Cemeteries that were in danger of damage by exploding shells or that were in the way of construction were relocated. Both were done at Government expense.

Federal Assistance for War Housing and Public Service Facilities

The Federal Government had to develop special housing programs to care for the thousands of workers who flocked to the Government plants and training areas. Local communities sometimes tried to give direction to the mushroom building boom by enacting zoning regulations and health ordinances.

The U. S. Department of Agriculture was interested in defense housing because many camps and ordnance plants were necessary in rural areas. It was thought that normal rural housing for the postwar period in areas with newly developed war industries could be improved if housing for war workers could be built on farms within commuting distance from the place of work, with an arrange-

ment for a farmer to buy the house on his land at the close of the war. This idea was used in connection with the ordnance plant at Radford, Virginia. Selection of housing sites was based on a survey made of surrounding counties to learn the need for improved rural houses and the willingness of the farmers to cooperate in the program. Under the plan, a farmer would lease a small plot of ground to the Government and at the end of the war he was to have first chance to buy the house on it. Seventy-one houses were built in this way in the Radford area and shortly after the war were sold to farmers.

An attempt was made to extend this type of rural housing to other defense areas. However, the tempo of the war program was too rapid to warrant such a program. It took too much time to negotiate and to make the frequent and lengthy calls demanded for each house that was to be built. Farmers seemed skeptical about the lease and legal procedures, and evidently did not feel certain of becoming the eventual owners of the houses. Such a program required much "salesmanship" to overcome human skepticism and suspicion. The Land Use Planning Committee of Des Moines County, Iowa, listed three reasons why it did not believe the plan would be accepted by the farmers in its county.

1. Very few farmers would be willing to enter into an arrangement of this kind without definite assurance as to when the house would be available for farm use, and as to the terms of the transfer of the house from the government to the private owner.
2. Housing defense workers in new houses in rural areas would increase the costs of rural schools; because of the low percentage of State aid in Iowa for schools this would be a serious matter.
3. Members of the Planning Committee were inclined to question the desirability of transient or semi-transient defense laborers as citizens of rural communities. They believe most farmers would object to having a house on their land that could be occupied by people over whom they had no control.

The most temporary type of defense and war housing was represented by the trailer camps established rather generally throughout the country. These were sometimes acquired by the Government and rented mainly to families of construction workers. Sometimes, the Government developed the trailer site and leased the space to owners of private trailers. Nonmovable temporary housing units were constructed in the vicinity of camps and ordnance plants. Some permanent and semipermanent dwellings were put up for

officials and permanent workers. In many areas new residential communities were established. A much larger proportion of the housing units constructed in rural and village areas was temporary than was true in urban areas.⁵

The Federal Government gave substantial assistance to local taxing units for schools, hospitals, and public service facilities in conjunction with the war housing program. Local communities could not have financed these facilities. It was a war need, chargeable to the war, and in most instances was definitely temporary in nature. This Federal aid was distributed on the basis of need for expanded facilities and was not related to losses in tax base because of Government land purchase. Thus, it cannot be considered as offsetting benefits to the taxing units affected by Federal purchase of land. As an example, in the Fort Leonard Wood area in Missouri on \$14,000 was given Pulaski County for school operation whereas more than \$400,000 was given for school enlargement and operation in the nearby villages of Lebanon, Rolla, Waynesville, and Richland, all within commuting distance of the Fort. A major portion of Fort Leonard Wood is located in Pulaski County.

Federal aid for war housing and public service facilities and operation of those facilities was authorized under the Lanham Act.⁶ Through June 30, 1946, under authority of this act, the Federal Works Agency had allotted \$481,216,691 for aid to taxing units for construction of facilities and for public services. Of the \$359,605,457 spent for public works, only \$8,275,474 was in the form of loans, while \$180,059,526 was for Federal construction and \$171,270,457 for Federal grants for non-Federal construction.⁷ Federal allotments for war public services was primarily in the form of assistance in paying of teachers, operating day nurseries, buying fire equipment, and hiring of additional policemen and employing personnel needed to operate recreational centers.

Most of such Federal assistance went to urban areas and particularly those along the coasts with their huge new populations working at ship building and training centers but a sizable proportion went to rural taxing units—those in the vicinity of military training areas or ordnance plants.

⁵ For a discussion of the war housing program, see printed report: *Public Housing, The Work of the Federal Public Housing Authority*, Mar. 1946.

⁶ 54 Stat. 1125, Oct. 14, 1940, as amended.

⁷ WS-2, Statistical Report, p. 2, Federal Works Agency, Bureau of Community Facilities, War Public Works and Services, June 30, 1946.

Conclusion

The multiple problems associated with the taking of land for public purposes stem from two fundamental concepts—the supreme right of the State to possession and occupancy of the land and the constitutional rights of the individual in that of his property cannot be taken without just compensation. All of the legal procedures, such as “condemnation” and “declaration of taking,” are devised to expeditiously effectuate the transfer of land from private to public purposes—protecting the rights of the Government as well as the property rights of the individual.

Relocation of families is the most difficult problem arising from large-scale governmental purchase of land. The necessary social and economic readjustments are difficult for all occupants of the area—whether it is a productive area or one that might best be depopulated and utilized in more extensive uses in public ownership. People who have spent a lifetime in an area are not inclined to accept the conclusion that they would be better off by moving to other areas having greater economic opportunities. It is not possible to compensate unwilling settlers for all the values associated with their homes and community.

The war is now over and the land acquisition program of the War and Navy Departments has been put in reverse. Up to October 20, 1946, a total of 1,270,000 acres of this land bought from private owners had been declared surplus and were being sold back to private ownership or transferred to other public purposes. This is about 20 percent of the total bought during World War II. It is being disposed of in accordance with the provisions of the Surplus Property Act of 1944. This law gives priority to former owner and former tenants to repurchase their former properties and thus does not permit a replotting of land into more satisfactory economic-sized farm units.⁸

Undoubtedly, nearly all of the productive agricultural land that was bought will be returned to private ownership when no longer needed for military and war production purposes. It is hoped, however, that those projects having land that is not well adapted to agricultural use in private ownership will be retained in public ownership and transferred to other public purposes, such as fores-

⁸ For an analysis of the provision of this law as it affects the disposal of rural real estate, see Alvin T. M. Lee, “Farms and Homes from Surplus Military Land.” *Journal of Land & Public Utility Economics*, Vol. XXI, No. 4, Nov. 1945.

try, wildlife, recreation, and other uses for which the land is best adapted. Returning the projects with poor land to private ownership under the priority provisions of the Surplus Property Act will perpetuate the maladjustments in use and ownership that existed there before these areas were purchased. By retaining in public ownership these projects with poor land and using them for necessary public purposes, it will hold to a minimum the unpleasant task of evicting families from their homes because of the public need for their land in the future. Retaining such projects in public ownership will make it possible to partially meet the future public needs for land without incurring costs of new land assembly or of reacquiring lands now in public ownership which may again be needed in the future.

Land in standby military projects need not lie idle. The War Department's agricultural leasing program is an illustration of how selected open areas may be outleased to farmers while major military use is proceeding on the rest of the area. During the war years 1944 and 1945 the War Department "outleased" 377,579 and 895,504 acres respectively to farmers in the vicinity of the military projects. In 1946 when many projects were designated as "standby" the acreage outleased reached 1,145,993 acres. Outleasing of land in military sites makes it possible to retain for a considerable time even some of the good agricultural land pending decision as to future military needs. Outleasing of portions of the projects that are to be retained indefinitely increases the economic opportunities of farmers in the local areas, reduces Governmental costs for fire and weed control, and with adequate provisions in the lease will facilitate keeping the land in good productive condition while in Government ownership. There is legislative authority also for delegating land management in military projects to such agencies as the Forest Service which are equipped and staffed to handle such work, while at the same time holding the project available for immediate military use. Thus, land in military projects can be used for forestry or other nonmilitary purpose while still being available for use or concurrently used for military training.

QUANTITATIVE RESEARCH IN AGRICULTURAL ECONOMICS:

THE INTERDEPENDENCE BETWEEN AGRICULTURE AND THE NATIONAL ECONOMY*

TRYGVE HAAVELMO

I *Recent Developments*

RECENT trends in quantitative research in economics have led away from the more superficial analysis of "market barometers" (for example, share prices and wholesale prices) towards those more basic economic factors that are the end results of economic activity, such as volume of output, consumption, investment, and real income in the various sectors of the economy. This change in objectives has brought with it a change in the necessary theoretical framework and statistical tools. The emphasis has shifted from mechanical investigations of the ups and downs of certain descriptive time series to the development of theoretical models intended to explain, quantitatively, the mutual interdependence among the various economic factors. The purpose of studying such interrelations is to obtain an "explanation" of the mechanism that determines the level of economic activity and thereby the general economic welfare of the various groups in the economy. This same purpose is equally appropriate and desirable for modern economic research concerning the agricultural sector of the economy.†

II *The Network of Economic Relationships*

This change of emphasis in economic research is only a reflection of the general trend in economic and political thinking. In a sense, the trend in economic thinking—among economists as well as among those who make public policy with regard to economic

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† The amount of literature on economic research in agriculture is already enormous, and even more material and results are probably contained in unpublished manuscripts in the files of the Department of Agriculture and other agencies. As far as the literature is concerned, the reader is referred in particular to Professor Henry Schultz' monumental work on *The Theory and Measurement of Demand*, (Chicago, 1938) which contains not only Professor Schultz' own findings but also critical surveys of the work of others and extensive references to the pre-World-War-II literature. For a more technical exposition of some of the newer ideas advanced below, reference is made to M. A. Girshick and T. Haavelmo: "Statistical Analysis of the Demand for Food," *Econometrica* April, 1947.

affairs—has perhaps been ahead of the corresponding developments in the appropriate research tools for quantitative analysis.

Current economic ideas on the subject of agricultural economics and the welfare of the farm population run more or less in these terms: Because of the mutual economic dependence between the two sectors, one cannot reach a full, or even approximate, explanation of the economic conditions within agriculture unless one has an understanding of the functioning of the economic mechanism that governs the non-agricultural sector of the economy. High incomes in the non-agricultural sector are an essential condition for prosperity in agriculture, and high incomes of the farm population are likewise important for prosperity in the rest of the economy. High prices for agricultural products are associated with high farm incomes, but does this mean that an increase in agricultural prices will cause only a shift in real income from the non-agricultural sector to the agricultural sector? Or does it mean a change in total real income and employment of the economy? Sometimes it may be possible to reach an answer to such questions through a priori economic reasoning. But more often the answer will depend on the actual quantitative values of the elasticities with which the various groups in the economy respond to price and income changes. *The main objective of quantitative research in this field is, then, to measure the network of economic relationships that explains the functioning and the results of this mutual interdependence between the two sectors.*

Let us examine this network a little more in detail. Suppose that our goal is to explain the fluctuations of the annual net income of farmers. We may start out by defining this net income as the value of sales to the nonagricultural sector plus the value of farmers' total consumption plus the value of net change in assets minus expenditures made to the non-agricultural sector. To explain changes in farm income we would therefore have to study the relations that describe farmers' decisions to produce, to purchase means of production, and to improve their farms, as well as the more technical input-output relations governing agricultural production. In attempting to explain these various economic decisions and actions within the agricultural sector, we should find that a variety of economic factors pertaining to the non-agricultural part of the economy enter into the picture—factors such as cost of farm machinery and other means of production, cost of consumers' goods purchased from the non-agricultural sector, industrial wages and

their effect upon supply of farm labor, and prices paid for agricultural products in the non-agricultural sector.

From the point of view of economic action—that is, of the decisions to produce, to consume, and so on, within agriculture—the factors relating to the non-agricultural sector might perhaps be considered as “exogenous variables,” not influenced by the farmers’ own actions. That is, one might say that the farmers plan as if these factors were imposed autonomously “from outside.” But this does not mean that the exogenous factors remain constant or that they are independent of the economic actions within the farm sector. Thus, even if we had arrived at an exact explanation of the level of farm output, farmers’ consumption, expenditures on farm machinery, savings, and the like—in terms of the factors that appear as given from outside—we should still not be able to make any *absolute* statements about the variables to be determined. For that purpose, we should also have to know how the factors that appear to be determined within the non-agricultural sector are, in turn, affected by the economic activity of the agricultural sector. For example, it might be reasonable to assume that the price level at which a given output of agricultural products can be sold will be determined by the level of income in the non-agricultural part of the economy. To determine this price level, then, it might seem reasonable first to make a guess at the probable level of non-farm income and then to calculate the price level that might be expected, given this income. But obviously this is not adequate since it is not possible to guess at the income of the non-agricultural sector without already having some idea of what the farmers’ income will be, and this in turn depends on the prices they receive. However, this situation does not mean that we are involved in circular reasoning. It simply indicates that, in addition to a theory of the supply of and demand for agricultural products, we must explain all the variable factors that enter into the analysis in terms of certain factors that are known explicitly or that are determined by autonomous government action.

This is what the economist means when he says that, in order to study the mutual interdependence between the various parts of an economy, it is necessary to establish the *complete, determinate* system of relations that ties the various economic variables together. This idea has a strong basis of tradition in economic theory, dating back to the work of the physiocrats and later to the more

explicit and elegant theories of Leon Walras. In modern times the interest of many economists has been directed towards investigations into the quantitative nature of the dependence between economic variables.

III *More Efficient Statistical Tools*

One might think that this new emphasis upon the necessity of studying many economic relations simultaneously is something that need not concern the *statistician* in his attempt to derive estimates of the individual economic relationships in the economy. For example, one might think that the statistician, when studying economic relations within the agricultural sector, could take all the outside, non-agricultural factors as given and then establish the reaction of the farmers to these various factors; or that, similarly, when the statistician is studying relations within the non-agricultural sector, he could treat the factors resulting from farmers' decisions to produce, to consume, and so on, as external to the non-agricultural part of the economy. It can be shown, however, that—from the point of view of statistical theory—this type of *partial* analysis leads to logical inconsistencies of much the same nature as the fallacy, in economic theory, of neglecting the mutual economic interdependence between the two sectors. The results of such an approach would usually not represent the basic behavior relations that we desire to measure in order to gain more profound insight into the functioning of the whole economy. This follows since the variables that appear to be exogenous to the agricultural sector are themselves influenced, in the final analysis, by the varying response of the agricultural sector to these exogenous variables. In the language of those that are familiar with statistical regression analysis, we would have situations where the variables considered as “independent variables” are themselves correlated with the residual variations of the variables that we try to “explain.” Under such conditions the classical method of multiple correlation analysis is not applicable.¹ It would, in general, lead to poor and biased estimates. It might even lead to spurious results in cases where one can show that an attempt to estimate makes no sense. That is, an erroneous procedure of estimation may lead to some sort of definite numerical results even when it can be proved conclusively that the estimation problem under consideration is in fact indeterminate.

¹ See e.g. Girshick and Haavelmo, op. cit. pp. 79–86.

The extensive literature on the classical problem of "deriving supply and demand curves from the same data" contains many examples of the confusion that may arise when these problems are not dealt with by rational and consistent methods.

But does one have to be concerned with these delicate problems when the purpose is only to derive some mechanical formulae for making predictions? Suppose, for example, that we should find a very high correlation between farm income and non-farm income. Could we not then use this relationship to predict farm income, assuming no changes in the structure of the economy? The answer is probably, Yes, if we know what non-farm income will be. But if we do not have any information on the non-farm income, it is of little use to guess at a value for this variable and then calculate the expected value of farm income by means of the correlation mentioned above. We might as well guess directly at the farm income itself. To obtain more useful prediction formulae, it is necessary to find out how the factors one wants to predict are related to factors that can themselves be predicted on an independent basis. In order to determine what our prediction formulae should be under this approach, it is usually necessary to investigate the nature of the various behavior relations that are the characteristics of economic activity in the economy that we are dealing with.

Recent developments in statistical theory have produced new and more efficient tools for handling research problems of this nature. It is not possible here to go into detail concerning the theory and technique of these new methods.² They will often have to be fairly complicated. Suffice it to say here that they represent the theoretical and statistical counterpart of ideas, long advocated by economists and practical politicians, that a real understanding of what goes on in the various parts of the economy requires that we know the interrelations between the various economic variables that we are talking about. One must not assume "other things given" when, in fact, they are not.

IV *Usefulness in Policy*

Suppose we did succeed in deriving fairly accurate estimates of

² Readers interested in the more theoretical aspects of these problems are referred to Trygve Haavelmo: "The Probability Approach in Econometrics," *Econometrica*, 1944, vol. 12, Supplement. A somewhat more popular exposition is found in T. Koopmans, "Statistical Estimation of Simultaneous Economic Relations," *Journal of the American Statistical Association*, vol. 40, 1945, pp. 448-466.

the supply relations, demand relations, production functions, and other economic laws that together would describe the interrelations between the various economic variables in the economy. For what purpose could this network of relations be used? Obviously, such knowledge is required to satisfy our scientific curiosity. But there is also a far more practical reason. Some knowledge of the nature of the mutual interdependence between the economic factors in the various parts of the economy is obviously a prerequisite for intelligent formulation of over-all government policies such as policies of taxation and subsidies, public spending, price regulations and rationing. Political debates on economic policies are often chiefly concerned with the desirability or non-desirability of the objectives of these policies rather than with the specific means by which such objectives might be reached. The means of reaching a certain objective might, to the politician, seem direct and obvious. For example, suppose that a political majority is of the opinion that farmers have unduly low incomes. As an immediate remedy it might seem appropriate for Congress to pass a law guaranteeing higher prices for farm products. But economic thinking, even of the crudest type, would almost immediately lead to the observation that one must also consider the indirect effects of such measures upon other parts of the economy, as well as the repercussions of these effects upon the economic policy under consideration. Without a rational analytical model of how the economy works as a whole, it is usually almost hopeless to keep track of these repercussions.

One might ask how the knowledge of the network of economic interrelations, describing the structure of the economy *before* a certain measure of policy is introduced, could help in describing what the economy would look like *after* the new policy is put into operation. The answer to this question will, of course, depend upon the nature of the policy or policies that are being considered. Some policies merely change the numerical values of certain economic variables which are already subject to government decision and which the individual private sectors of the economy already are accustomed to consider as being outside their sphere of influence. Speaking technically, this means that we could calculate the effects of changes in government policy simply by inserting the new values of these variables into the old behavior relations of the various private sectors. A change in the tariff of some imported product, or changes in the rates of taxation under a given tax system, are

examples. Other policies may be such that they influence the behavior of individuals or groups in a manner that can be determined by a priori considerations. Still other types of policies may disrupt the behavior patterns of some sectors of the economy while leaving other sectors unchanged. Thus, for example, a regulatory policy with respect to the supply of a commodity may not affect the behavior pattern on its demand side; one could then use the old demand function to calculate the effects of such a policy but not the previous supply function.

Whatever the circumstances, it is of no help to take the point of view that predictions of this type, based on past experience, are impossible. The practical administrator also makes use of simplifications, broad abstractions, and rough approximations. This is unavoidable. The economist who engages in quantitative research believes in stating more openly and explicitly what these simplifications and abstractions are, in order that their implications may be studied in a rational fashion. In this way he avoids piling logical inconsistencies and errors in reasoning on top of the mistakes that he—as well as everybody else—will necessarily commit in attempting to comprehend the full complexity of economic life.

The increasing research activity along the lines we have indicated is sometimes considered as a symptom of a trend in the direction of more government planning. This might cause shortsighted opposition to aiding such research work. To this argument, however, there is a simple answer—namely, that, given a decision upon a certain objective of government planning of some kind, the objective can probably be reached more efficiently and with less direct restriction upon the freedom of action of the individual private sectors in the economy if we know something definite about the intricate network of interdependence underlying the functioning of the whole economy.

V An Appendix to Illustrate the Methods of Model-analysis: The Demand for Food and Its Relation to the National Economy

In order to develop a rational economic model it is desirable to start with a precise classification of the various groups in society according to their principal economic actions. For our purpose, here, let us first divide the economy into two groups: the consuming sector and the producing sector. (One and the same person might

appear in both groups according to the type of action considered.) The economic function of the consuming sector is to receive income, that is, wages and profits, to spend part of this income on consumer goods, and to save. The economic function of the producing sector, on the other hand, might be considered as the paying of income to individuals (or, to the consuming sector), and the supplying of consumer goods. If the producing sector pays out more income than it receives for sales of consumer goods, it invests. The counterpart of this investment expenditure—that is, of this excess of income paid out over receipts—consists of the value of the net increase in inventories plus the value of the net increase in plant and equipment in the hands of the producing sector. We may also consider exports and imports as passing through the hands of the producing sector, in which case there might be an additional counterpart to investment expenditures as defined above, namely, the net increase in foreign balances.

Let us now divide the producing sector into two sub-sectors according to the type of consumer goods supplied. Let Sector 1 be the sector producing and supplying food to consumers and Sector 2 the sector producing and supplying non-food consumer goods. Thus, Sector 1 will cover farms, processing industries, food dealers and so on. A similar interpretation applies to Sector 2. Each of the two sectors will make certain income payments to individuals. There will also be a certain transfer of goods and services between two producing sectors, but this transfer does not by itself affect the total income payments to individuals (or, if we disregard taxes, “disposable income”).

Let us introduce the following symbols:

- 1) x_1 = volume of food sold to consumers per year
- 2) x_2 = volume of non-food sold to consumers per year
- 3) P_1 = price per unit of x_1
- 4) P_2 = price per unit of x_2
- 5) I = total annual net investment expenditures of the two producing sectors
- 6) Y = annual income of individuals
- 7) P = index of cost of living

(Effects of changes in population could be eliminated by using per capita figures for x_1 , x_2 , Y , and I .)

From what has been said above it follows that the income of individuals is given by the definition

$$(1a) \quad Y = x_1P_1 + x_2P_2 + I,$$

or, what amounts to the same,

$$(1) \quad \frac{Y}{P} = x_1 \frac{P_1}{P} + x_2 \frac{P_2}{P} + \frac{I}{P}.$$

This definition must hold regardless of the value of x_1 , x_2 , P_1 , P_2 , and I . The question is now whether we can say something more about these variables.

There seems to be rather strong theoretical and empirical evidence that total consumers' expenditures can be considered as a function of income, provided consumer expenditures and income are both deflated by an index of the cost of living. And, furthermore, this relationship seems to be approximately linear. Let the index of cost of living, P , be defined by

$$(2a) \quad P = e_1P_1 + e_2P_2, \quad \text{or,}$$

$$(2) \quad e_1 \frac{P_1}{P} + e_2 \frac{P_2}{P} = 1$$

where e_1 and e_2 are the (constant) weights of food and non-food respectively. Our statement about the behavior of total consumers' expenditures thus means that we can write

$$(3a) \quad \frac{x_1P_1 + x_2P_2}{P} = a_1 \frac{Y}{P} + a_0$$

where a_1 and a_0 are certain constants, a_1 being the "marginal propensity to consume." Combining this equation with the definition (1), we obtain

$$(3) \quad \frac{Y}{P} = a_1 \frac{Y}{P} + a_0 + \frac{I}{P}.$$

The question now arises as to how the consumers divide their expenditures between food and non-food. If we make an assumption as to how much people will spend for food, this assumption, together with (3a), implies an assumption as to the demand for non-food. Empirically, it has been found that the demand for food can be described fairly well by a linear function of the food price and the income when the latter two variables are deflated by an index of the cost of living. We are therefore led to the statement

that

$$(4) \quad x_1 = b_1 \frac{P_1}{P} + b_2 \frac{Y}{P} + b_0.$$

We now have four equations between our variables, but there are, altogether, 7 variables, as described above. The remaining three "degrees of freedom" are essentially due to the fact that we have not yet said anything about the decisions to supply x_1 and x_2 and the decisions that determine the investment expenditures I . In order to explain *past* observations of our variables we should have to study the nature of these decisions, their dependence upon prices, sales and perhaps other variables. Here we shall not do this. Instead we shall study the effects upon P_1/P , P_2/P , and Y/P of *alternative direct decisions* regarding the variables x_1 , x_2 , I . In other words, we shall attempt to answer questions of the following type: Suppose that the two producing sectors were in a position to decide autonomously upon the quantities x_1 and x_2 and the amount of investment expenditures I , while the consuming sector behaves according to (3a) and (4); how would changes in these decisions of the producing sectors affect real income, Y/P , and the prices P_1/P and P_2/P ? These are questions to which one would like to have the answers if for example one were to consider introducing some new economic policy under which x_1 , x_2 , and I would *in fact* be subject to autonomous regulation.

It is seen that the answer to such questions cannot be obtained by considering any one of our equations taken alone. We have to consider the equations as a *system*. The direct and obvious method would then be to solve our system of four equations (1), (2), (3), (4), expressing each of the variables, P_1/P , P_2/P , P and Y/P , in terms of x_1 , x_2 , and I .

The solutions turn out to be fairly complicated expressions and we shall not take up space by giving all of them. But, as an example, let us derive the solution for the price of food, P_1/P . By simple, but somewhat tedious algebra, the following expression is obtained:

$$(5) \quad \frac{P_1}{P} = \frac{e_2(a_0b_2 + a_1x_1 - a_1b_0) - b_2x_2}{a_1b_1e_2 + (x_1e_2 - x_2e_1)b_2}.$$

Similar formulae could be derived for P_2/P , Y/P and P .

What the formula (5) shows is this: Suppose the food producers were to change x_1 by a certain amount, the supply of x_2 and the investment expenditures I remaining constant. Then the effect of this change upon the real price of food, P_1/P , would depend both upon the numerical values of the parameters a_1 , a_0 , b_1 , b_2 , b_0 , e_1 , e_2 and upon the level of the variables x_1 and x_2 . In other words: The total effect, upon price, of a change in quantity supplied is not given by any simple "elasticity of demand," of the commodity in question, but depends—in a more complicated manner—upon the whole structure of the economy.

There is a simpler and more elegant way of studying effects of this type. Let us first re-write our system (1)–(4) using the notations

$$\frac{P_1}{P} = p_1$$

$$\frac{P_2}{P} = p_2$$

$$\frac{Y}{P} = y.$$

Our system then reads:

$$(1') \quad y = x_1 p_1 + x_2 p_2 + \frac{I}{P}$$

$$(2') \quad e_1 p_1 + e_2 p_2 = 1$$

$$(3') \quad y = a_1 y + a_0 + \frac{I}{P}$$

$$(4') \quad x_1 = b_1 p_1 + b_2 y + b_0.$$

Now let us consider the effect upon p_1 , p_2 , y and P of a change in x_1 , keeping x_2 and I constant. This means that we are interested in calculating the partial derivatives

$$\frac{\partial p_1}{\partial x_1}, \quad \frac{\partial p_2}{\partial x_1}, \quad \frac{\partial y}{\partial x_1}, \quad \text{and} \quad \frac{\partial p}{\partial x_1}.$$

These derivatives are partial in the sense that x_2 and I are kept constant. If we knew these partial derivatives we could, obviously, also calculate the corresponding elasticities $(\partial p_1 / \partial x_1)(x_1 / p_1)$ etc. The problem therefore is to obtain these partial derivatives from

the system (1')-(4'). To solve this problem we differentiate each of the equations (1')-(4') with respect to x_1 , keeping x_2 and I constant. This yields, after rearranging the terms, the following 4 equations from which to determine the 4 unknown partial derivatives.

$$\begin{aligned}
 & \frac{\partial y}{\partial x_1} - x_1 \frac{\partial p_1}{\partial x_1} - x_2 \frac{\partial p_2}{\partial x_1} + \frac{I}{P^2} \frac{\partial P}{\partial x_1} = p_1 \\
 & e_1 \frac{\partial p_1}{\partial x_1} + e_2 \frac{\partial p_2}{\partial x_1} = 0 \\
 (6) \quad & (1 - a_1) \frac{\partial y}{\partial x_1} + \frac{I}{P^2} \frac{\partial P}{\partial x_1} = 0 \\
 & b_2 \frac{\partial y}{\partial x_1} + b_1 \frac{\partial P}{\partial x_1} = 1.
 \end{aligned}$$

This is a system of four linear equations in four unknowns, namely the four partial derivatives involved. The determinant of the coefficients is:

$$\begin{aligned}
 (7) \quad & \begin{vmatrix} 1 & -x_1 & -x_2 & \frac{I}{P^2} \\ 0 & e_1 & e_2 & 0 \\ (1 - a_1) & 0 & 0 & \frac{I}{P^2} \\ b_2 & b_1 & 0 & 0 \end{vmatrix} \\
 & = \frac{I}{P^2} [a_1 b_1 e_2 + (x_1 e_2 - x_2 e_1) b_2].
 \end{aligned}$$

The solutions of (6) are obtained by ordinary methods of solving linear equations. The solutions, written as elasticities, read:

$$(8) \quad \frac{\partial y}{\partial x_1} \frac{x_1}{y} = \frac{b_1 e_2 p_1 + e_2 x_1 - e_1 x_2}{a_1 b_1 e_2 + (e_2 x_1 - e_1 x_2) b_2} \frac{x_1}{y}$$

$$(9) \quad \frac{\partial p_1}{\partial x_1} \frac{x_1}{p_1} = \frac{e_2 (a_1 - b_2 p_1)}{a_1 b_1 e_2 + (e_2 x_1 - e_1 x_2) b_2} \frac{x_1}{p_1}$$

$$(10) \quad \frac{\partial p_2}{\partial x_1} \frac{x_1}{p_2} = \frac{-e_1 (a_1 - b_2 p_1)}{a_1 b_1 e_2 + (e_2 x_1 - e_1 x_2) b_2} \frac{x_1}{p_2}$$

$$(11) \quad \frac{\partial P}{\partial x_1} \frac{x_1}{P} = \frac{P^2(1 - a_1)(-b_1e_2p_1 - e_2x_1 + e_1x_2)}{I(a_1b_1e_2 + (e_2x_1 - e_1x_2)b_2)} \frac{x_1}{P}.$$

In exactly the same manner one could derive partial derivatives, or elasticities, with respect to changes in x_2 or I . (The determinant (7) remains the same, but the right-hand side of (6) will change.) If we knew the numerical values of the parameters involved in (8)–(11), we could calculate the derived elasticities. These elasticities will obviously depend also on the level of the variables involved. Certain approximate estimates of the parameters involved have been obtained from data for the United States 1922–41.³ The estimates of course depend upon the units of measurement of the various variables involved. Suppose we choose the units of measurement in such a way that the values of the price indices P_1 , P_2 , and P during the base period 1935–39 are all equal to 1 and such that the average value of real income y during this period is also equal to 1. It is thus found that the average values of x_1 , x_2 , and I during 1935–39 were approximately

$$x_1 = .25$$

$$x_2 = .65$$

$$I = .10.$$

The weights e_1 and e_2 of the index of the cost of living should, roughly speaking, be proportional to x_1 and x_2 ,⁴ that is

$$e_1 = .25 \frac{100}{90}$$

$$e_2 = .65 \frac{100}{90}.$$

In these units of measurement the following approximate estimates were found for a_1 , b_1 and b_2

³ The data used were: Per capita disposable income and per capita consumers' expenditures (Department of Commerce data), Index of cost of living and index of retail food prices (Bureau of Labor Statistics series), and index of per capita food consumption (Bureau of Agricultural Economics). For details of calculations involved, see M. A. Girschick and T. Haavelmo: *op. cit.* pp. 99–109.

⁴ The actual weights used in the BLS index of cost of living are slightly different because the weights of the BLS index refer to the lower income groups only.

$$a_1 = .7$$

$$b_1 = -.06$$

$$b_2 = .07.$$

Using these estimates we obtain the following values of the elasticities above, valid when the values of the variables involved are reasonably close to their values in the base period 1935-39:

$$(8') \quad \frac{\partial y}{\partial x_1} \frac{x_1}{y} = .36$$

$$(9') \quad \frac{\partial p_1}{\partial x_1} \frac{x_1}{p_1} = - 3.75$$

$$(10') \quad \frac{\partial p_2}{\partial x_1} \frac{x_1}{p_2} = 1.45$$

$$(11') \quad \frac{\partial P}{\partial x_1} \frac{x_1}{P} = - 1.07.$$

Stating our results in words, they read as follows:

If investment expenditures, I , and the output of non-food consumer goods, x_2 , were to be maintained at constant levels, a 1% increase in the output of food would

- 1) *increase* the real income of consumers by about .36%,
- 2) *decrease* the real price of food by about 3.75% (which means that the real income derived from producing food would decrease by about 2.75%),
- 3) *increase* the real price of non-food consumer goods by about 1.45%, and
- 4) *decrease* the cost of living by about 1.10%.

The reliability of these conclusions depends, of course, upon the accuracy of the statistical measurement of the parameters involved, their sampling errors etc., and much careful research is yet to be carried out to check the tentative estimates we have used above. But our preliminary results might perhaps serve as an illustration of the type of analysis that would be required in order to study the final, net effects of certain changes in the structure of the economy. To summarize, a study of this nature will usually involve the following analytical steps:

- 1) A precise description and formal analysis of the *new* structure to be considered.
- 2) A precise description of the *prevailing* structure in order to find out what parameters or properties of the prevailing structure will carry over into the new structure.
- 3) Estimation of these parameters, or properties, common to the two structures, on the basis of observations resulting from the prevailing structure.
- 4) The use of such estimates to predict results under the new structure *before* it is put into effect.

Above we have dealt mainly with steps 1) and 4), assuming the results of 2) and 3) to be available from other studies.

A NEGLECTED POINT IN THE TRAINING OF AGRICULTURAL ECONOMISTS

HOWARD E. CONKLIN*

Cornell University

ECONOMIC theory is a normal part of training in agricultural economics. Some institutions require more theory than others but it is not omitted in any of the recognized schools. Since our title is half "economic" and since formal economics is largely theoretical, this requirement seems somehow justified.

But how many students ever stumble upon the real justification? From personal experience and contacts with other students I am led to believe that theory is usually placed in one of three categories by prospective agricultural economists: It is considered at one extreme to be a necessary evil along with languages; or it is grouped with such "broadening" courses as history and government—valuable but outside our immediate professional field; or it is viewed at the other extreme as the real touchstone of knowledge. The proportion in which student attitudes divide among these categories varies from place to place. In any case, however, any of the three types of attitude are evidence that the chasm between courses in agriculture and those in economics has been found too wide to span; in none of them is theory placed in a working relationship with our "practical" tools. Nor are courses commonly available from which it is possible to gain the perspective for visualizing such a working relationship.

This paper is an attempt to explore some of the material and thinking that might form connective tissue between the theoretical and the practical. It deals principally with research methods because it is in research that the need for a union between theoretical and practical approaches is most acute. In research both abstract thought and data accumulation and analysis must be used as every day tools of the trade. Much of the subject matter considered is historical. An understanding that will open a view to the future must be based upon a study of what we have inherited.

Our methodological heritage is intermingled with conflicts concerning scope and ends, but the latter can form a separate chapter. The study of methods alone is sufficient background for grasping

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the tangible contributions theory may make to systematic economic inquiry. Scope is not directly involved and it is sufficient to assume the end of economic inquiry to be the attainment of knowledge for its own sake as in the natural sciences.

Economics originated as a deductive "science." Seeking in the early stages of its development to teach what should be rather than to discover what is, it could not have been other than deductive. In its deductive character it was consistent with the Greek belief that all knowledge is a derivative of "pure reason." This belief, later implicit and concealed, guided its development for many centuries and much of today's economic thinking reflects it. Economics began to lose its normative character, but not its deductive approach, at the hands of the Mercantilists and the Physiocrats and Adam Smith helped to draw that line more clearly. Although this contributing element was gradually removed, the traditional method remained largely intact. Smith was a keen observer of the events of his world but his methods of abstraction have been longest remembered.

Inductive methods have come more slowly to economics than to most other branches of academic endeavor. Probably this is traceable to the impossibility of controlled experimentation, the multitude of factors operating in the economic world, the importance of human elements too close for objective observation, and to the slow development of statistical devices suitable for controlled observation. Inductive methods were employed in a loose, qualitative fashion by the early economists, and the theoretical usefulness of such devices was considered in some of the first recorded discussions of methods in economics.¹ But only in the past half century have empirical, inductive studies begun to make a material contribution in the field as a whole. Perhaps it is not surprising that confusion and conflict often have attended these attempts to break from the path of tradition. In many instances the attempts were made because of reactions against the older, entrenched ideas, and so they have tended to introduce a dualism into the field, with the theorists on the one hand and the empiricists on the other. Theorists have tried to maintain their position as superior to that of the "fact finders," envying the latter, no doubt, for the rather large financial support they often receive. The "fact finders" often

¹ Rev. Thomas R. Malthus, *Principles of Political Economy*, Wells and Lilly, Boston, 1821.

have been eager to differentiate themselves from the theorists lest they fall into ways not sufficiently "productive" to sustain the interest bringing them their support. In this dualism "facts" have come to be viewed, on the one hand, as the sole and direct source of all knowledge and, on the other, as the anvil upon which thought derived "laws" are to be tested or even as only the models upon which these "laws" are to be tried in quest of a fit. A page from the book of methods in the physical sciences is appropriate at this point.

It seems reasonably well settled that progress in the physical sciences is dependent upon the use of an hypothesizing-testing-hypothesizing sequence. This sequence involves both deduction and induction; deduction, to derive the implications of existing knowledge or assumptions in order to shape speculations that will guide further inquiry; induction, to distill the "summary and conclusions" from further inquiry. The essential nature of what has come to be scientific method in the physical sciences is well set forth in the following quotation from John Dewey:²

"I begin with a summary statement of the conclusions to be reached regarding the distinctively inductive and deductive phases of inquiry, and their interrelation, or functional correspondence, with each other. (1) The inductive phase consists of the complex of experimental operations by which antecedently existing conditions are so modified that data are obtained which indicate and test proposed modes of solution. (2) Any suggested or indicated mode of solution must be formulated as a *possibility*. Such formulation constitutes an hypothesis. The *if-then* proposition which results must be developed in ordered relation to other propositions of like form (or in discourse), until related contents are obtained forming the special *if-then* proposition that directs experimental observations yielding new data. The criterion for the validity of such hypotheses is the capacity of the new data they produce to combine with earlier data (describing the problem) so that they institute a whole of unified significance. (3) The nature of the interrelation or functional correspondence of these two phases of inquiry directly follows. The propositions which formulate data must, to satisfy the conditions of inquiry, be such as to determine a problem in the form that indicates a possible solution, while the hypothesis in

² John Dewey, *Logic, The Theory of Inquiry*, Henry Holt & Co., New York, 1938, p. 427.

which the latter is formulated must be such as operationally to provide the new data that fill out and order those previously obtained. There is a continued to-and-fro movement between the set of existential propositions about data and the non-existential propositions about related conceptions."^{3,4}

The dualism in economics splits the hypothesizing from the testing and thus has prevented the construction of this stairway of alternate steps by which the physical sciences have progressed. The dualism is slowly breaking down from point to point, however, and belief is currently increasing that at least some of the methods of the physical sciences are useful in the social sciences as well. The activities of the National Bureau of Economic Research provide an example. Efforts like those that culminated in Henry Schultz's "The Theory and Measurement of Demand"⁵ are others. Professor Schultz's work represents an outstanding attempt to combine the processes of theoretical study and empirical observation. He started with the most advanced formulations of demand theory then current and developed them as guides to his selection of data and to the determination of the general form and direction of his analyses. He combined this use of theory with some of the most advanced techniques of statistical reasoning to arrive at conclusions about real processes in a real world.

Until the recent past, however, recognized economics has been preponderantly deductive, and even in the present the great bulk of economic writing is the result of applying this technique. In the study of theory as part of a rounded preparation for research and teaching in agricultural economics it is important to understand how this branch of thinking has evolved and the nature of the position in which its devotees hold themselves.

As a deductive study, economics has clung closely to certain types of formal logic. In this position it has occupied the place of a weaker brother, looking to this logic for ready made rules of thought by which to construct a superstructure from a limited set of premises; looking to it also for support of its claim to the position of a

³ This quotation from Dewey should not be construed as indicating full agreement with his notions in respect to what constitutes scientific procedure in the social sciences. (*Ibid.* Chapter XXIV.)

⁴ A striking example of the use of this method is set forth by R. A. Fisher in an article entitled "The Rhesus Factor, A Study in Scientific Method," in the January, 1947 issue of the *American Scientist*.

⁵ Henry Schultz, *The Theory and Measurement of Demand*, The University of Chicago Press, Chicago, Ill., 1938.

science. Logic, as the Greeks formulated it and as its main stream has run nearly to the present day, has been a willing brother. Its forms provided the illusion of ready made rules for the thought derivation of knowledge, and its own approach to the attainment of knowledge could be used as a justification by parallel for the claim of economics to scientific standing.

J. E. Cairnes was among the first to write under the title of scope and method in economics. His dependence upon contemporary thought in the field of logic is evident in his expressed belief that he had demonstrated the scientific standing of economics as in no respect less certain than that of chemistry or physics by establishing the "fact" that it is based upon "unquestionable" elements as premises and that it employs "strict logical accuracy."⁶ Cairnes went even further to the novel conclusion that economics was especially privileged by being able to start from a point whose attainment required long and arduous effort in the physical sciences. He maintained that our intuitive knowledge of human nature was such that economics could start where physics stood after the discovery of the gravitational law and similar fundamentals.⁷ He maintained, moreover, that economic laws "can neither be established nor refuted by an appeal to the records of such phenomena—that is to say, by statistical or documentary evidence bearing on the course of industrial or commercial affairs."⁸

The attitudes and beliefs expressed by Cairnes can be traced through the writings of J. N. Keynes⁹ to those of Lionel Robbins¹⁰ in the present day. They are also implicitly evident in the writings of other economists who never addressed themselves directly to the subject of methods. Robbins' recent book reveals its heritage clearly. He considers that the masters who preceded him wrote the final chapter in the book of methodology.

"It is the object of this Essay to arrive at conclusions which are based on the inspection of Economic Science as it actually exists. Its aim is not to discover how Economics should be pursued—that controversy, although we shall have occasion to refer to it *en*

⁶ J. E. Cairnes, *Political Economy: Its Character and Logical Method*, Harper and Brothers, New York, 1875.

⁷ *Ibid.*, p. 87.

⁸ *Ibid.*, p. 110.

⁹ J. N. Keynes, *Scope and Method of Political Economy*, Macmillan and Company, London, 1891.

¹⁰ Lionel Robbins, *An Essay on the Nature and Significance of Economic Science*, Macmillan and Company, London, 1932.

passant, may be regarded as settled as between reasonable people—but rather what significance is to be attached to the results which it has already achieved.”¹¹ Professor Robbins does admit the possible usefulness of empirical evidence for two purposes, but these only.

“The first and the most obvious is the provision of a check on the applicability to given situations of different types of theoretical constructions.”

“But, secondly, we may expect of realistic studies, not merely a knowledge of the appropriate application of particular theories, but also the exposure of areas where pure theory needs to be reformulated and extended.”¹²

These purposes clearly are not such as might effect any reciprocal modifications in the theories. They are carefully framed to be consistent with Robbins’ belief that theory represents inviolable laws revealed to those who have the capacity and willingness to think deeply. Theories are not to be tested against fact; they are merely to be tried on facts until those fit to fill the bill are found. In some instances, though, it may be worth while to file orders with the thinkers if important areas are found that have not been covered as yet.

Robbins is unwilling to concede that “Quantitative Economics” has contributed a single iota directly to the field as a science, and pronounces the judgement that “. . . most of the investigations involved have been doomed to futility from the outset and might just as well never have been undertaken.”¹³

Keynes is the link in the classical lineage between Cairnes and Robbins, and is true to the general form of that school. His position on the methodological issue is indicated in his statement that “. . . it is held that on account of the variety and complexity of the influences to which economic phenomena are subject, the method of specific experience or direct induction is inadequate to yield more than empirical generalizations of uncertain validity.”¹⁴ Keynes is somewhat more tolerant than Robbins, however, of the idea that studies of fact can contribute to economic science. He says that “. . . according to the special department or aspect of

¹¹ *Ibid.*, p. 72.

¹² *Ibid.*, pp. 106, 107.

¹³ *Ibid.*, p. 102.

¹⁴ J. N. Keynes, *op. cit.*, p. 14.

the science under investigation, the appropriate method may be either abstract or realistic, deductive or inductive, mathematical or statistical, hypothetical or historical."¹⁵ Keynes' position is less extreme, but he does not exhibit an understanding of the way these various kinds of activities are interrelated and interdependent in the scientific procedure of the physical sciences. He treats them on an either-or basis instead of pointing out their interdependencies.

Economists from early times have looked with admiration and envy upon the physical sciences. The leadership of these sciences in human efforts to acquire knowledge has been generally recognized and economists have tried to emulate their fellow leaders. They have mistakenly believed that the form of the end product, rather than the processes by which that product is derived, is the basis upon which activities are to be classified as scientific or otherwise. Accordingly, they have focused attention upon deriving "laws" that could be set in parallel with those of physics and chemistry. Because experiments were not possible in economics and because economists were too impatient to be occupied with the study of minutiae, they seized upon and perpetuated the deductive approach to the derivation of these laws. There has been created through the years a massive testimonial to the efficacy of deduction as the sole source of economic knowledge and this has been done in such a way that Robbins' recent statements are not so utterly incongruous in the economic context as they would be in the natural sciences.

Thus economists' efforts to emulate scientific leadership have lead them strangely enough down an unscientific byway. The products of economic "science" look scientific but the procedure that lies behind them has little in common with the hypothesizing-testing techniques of the recognized sciences. Hoping to become one thing, economics has actually become another. Operationally viewed, it has grown into a parallel with mathematics, a branch of formal logic, rather than into a field of scientific stature. Economists have busied themselves with the task of developing the implications of selected assumptions, as have the mathematicians, without attempting to verify either the assumptions or the conclusions. Physicists, meanwhile, have been using deduction as a guide to empirical study. Not in recent times have they appealed to

¹⁵ *Ibid.*, p. 30.

deduction as the final truth *ab extra*. In their work, deduction and experimentation has gone hand-in-hand. Einstein's theories, for example, rested firmly upon the empirically established content of physical science at the time they were advanced and since then have been subjected to far reaching tests.¹⁶

But theoretical economists have not felt bound to the slow pace of any experimental (or observational) procedure and so have felt free to attack a great range of problems. Their efforts remind one of the early alchemists who poured considerable effort into attempting the transmutation of metals before one among them became "preoccupied with the irrelevant" and discovered the synthesis of urea. Urea probably smelled as bad then as it does now, but from this discovery grew many years of effort that has brought us finally to where transmutation of certain metals is an accomplished reality. Or economists might be compared to the early medics. No one can doubt that they were dealing with important issues—they were issues of life and death for thousands. But somehow those issues kept until thousands of man-years of work were put into painstaking studies of how the human body functions and how pathogenic agents live and spread. Economists, feeling the immediate importance of their issues, were equally impatient and only today are beginning to settle down to mundane tasks like synthesizing urea and dissecting cadavers.

Not even many concepts of economics have been designed so that they can function in studies of the economic forces that operate about us. Concepts are the common denominators of any science and progress in acquiring knowledge is closely related to the manner in which concepts are constructed. This is illustrated nowhere more clearly than in physics where recent progress awaited the conceptual reformulation contributed by Einstein. Economists have considered their efforts completed with the construction of internally consistent deductive systems and therefore have shaped their concepts to fit such systems. Marshallian demand illustrates the nonoperational character of classical theory forms. In order that demand be a suitable element in an undeniably accurate piece of deductive reasoning it has been so defined that in the real world of change it is an instantaneous thing. Before empirical studies of

¹⁶ P. W. Bridgman, *The Logic of Modern Physics*, Macmillan Company, New York, 1928.

demand could be made it was necessary to convert this transitory concept into an operational one.¹⁷

T. W. Hutchison has given us an admirable critique of the methods of classical economics in his *Significance and Basic Postulates of Economic Theory*.¹⁸ Yet he actually has said little that had not already been said, much of it by men who in practice themselves used the classical methods. Malthus in his time recognized the weakness of theory without records of empirical observations. Smith before him, though not explicit, must have felt the same about the matter else he would not have so liberally illustrated his *Wealth of Nations* with accounts drawn from his observations. Mill, too, and Senior pointed out the pitfalls that may attend the "hypothetical treatment of the science," and, of course, the historical school in Germany was in part a reaction against the classical methods. Jevons and later Pareto and Edgeworth emphasized the need for inductive studies. Marshall and especially Pigou point out in their works of nearly pure theory that greater knowledge of economic facts is needed and Pigou makes a real effort to construct operational concepts for his measures of welfare.

Thus not all of the classical economists have taken the extreme view expressed by Robbins. But while exhortations to inductive study are not hard to find, comparatively little has been done to spell out a basis for effectively contributing generalizable relationships through observational analyses. Many of the economists who in the abstract have written of the need for empirical study have confined themselves to deduction in their own undertakings. Few of those who made penetrating criticisms of the deductive approach carry through to constructive criticisms of economic concepts, much less to suggestions of how concepts once made operational can be employed in actual research. Though one may find Hutchison profitable reading he necessarily feels that the book is completed before the job is more than begun. If Hutchison had carried his work on through an examination of economic concepts in the manner Bridgman has done for physics,¹⁹ his contribution would be more than destructive. If then he had gone beyond the examination of concepts to an analysis of the possible place of statistical

¹⁷ Henry Schultz, *op. cit.*

¹⁸ T. W. Hutchison, *The Significance and Basic Postulates of Economic Theory*, Macmillan and Co., London, 1938.

¹⁹ Bridgman, *op. cit.*

reasoning and other types of inductive techniques in economic research, his contribution might have been very substantial.

Statistics is being slowly built today into social science research and there are those who believe that it holds possibilities comparable to the experimental method in the physical sciences.²⁰ The inferential elements of statistical reasoning, the null hypothesis, tests of significance, and fiducial limits, as well as idiographic devices for analyzing data, are relatively new. Newer yet is some of the mechanical and electronic equipment that is capable of handling great volumes of mass data. It is hardly to be wondered that economists and others frequently expose their ignorance by referring to statistics as the mere accumulation and arrangement of raw or nearly raw data. Nor is it surprising that few have speculated on how far statistics may make it possible to convert economics from exercises in formal logic to a truly scientific undertaking. Clearly, statistics as yet has substantial limitations. There are many phenomena that seem to have no repetitive pattern or at most short run stability. This may be because our phenomenal units are improperly chosen or it may be because sums of component patterns appear as though they were random values. Or, indeed, it may be that we must await the discovery of tools beyond statistics before we can bring some phenomena within the scientific realm. Statistics is developing rapidly, however, and already opens many unexplored vistas into future possibilities.

Inductive techniques are being built into the social sciences—where does this leave economic theory? Though the positions taken by some economic theorists seem extreme and reactionary, do they not have lessons to teach? The concepts of theory can be criticised as nonoperational, the hypotheses as often too far removed from reality to be practical and the conclusions as frequently no more relevant than the answers to hypothetical problems in a calculus text. Is this so serious an indictment that we are justified in pushing theory overboard?²¹ Wesley C. Mitchell answers: "Economic theory, I fervently hope, will not be neglected;

²⁰ Jevons has been quoted as saying: "I know not when we shall have a perfect system of statistics, but the want of it is the only insuperable obstacle in the way of making Economics an exact science." See Henry L. Moore, "The Statistical Complement of Pure Economics," *Quarterly Journal of Economics*, November, 1908.

²¹ In places it would be heresy to ask this question, yet it seems no more extreme than Robbins' view that empirical studies should be relegated to some level of lower life than the "science" of economics.

but more vigorous efforts will be made to test the assumptions on which reasoning proceeds, or the conclusions it reaches, or both, for conformity to the conditions we need to understand. Empirical workers in turn must have learned from recent experience that they cannot get significant results if they rely upon fuzzy concepts."²² His belief seems firm that only through integration of theory and empirical research can "an economics worthy to be called a science" be created. There is an increasing number of economists who believe that economic theory can provide part of the starting point, if only that, from which a science of economics can be built. And they go beyond this belief and hold that induction and deduction must proceed hand in hand, so closely interwoven that to separate them would require picking but parts out of individual studies, individual books. Conceptual reformulation so badly needed for effective empirical research in many branches of economics is an example of a task in theory that cannot be done apart from the empirical researches themselves.

This view of the place of theory in economic research is entirely consistent with the generally accepted principles of scientific research in the physical sciences. Economics' peculiarity rests in the fact that it has a vast body of prepared theory with no roots in the real world. Much of it will be discarded in time, perhaps, and the kind of interwoven, evolving theory developed that serves the physical sciences so well. A remark by Albert Guerard, quoted by Joseph S. Davis²³ serves well to remind us of the importance of grasping and developing theory as one of the cornerstones of scientific procedure: "Much of our research is but an arduous flight from the necessity of thinking."

This brief tour through the history of methods in economics uncovers much disagreement among men of standing. Although each in his own mind reaches conclusions on such a tour, one cannot fairly claim to write a conclusion for all. Yet it seems not out of place to set forth some points of the kind that might compose a working philosophy in agricultural economics. Some such philoso-

²² Wesley C. Mitchell, "Empirical Research and the Development of Economic Science," *Economic Research and the Development of Economic Science and Public Policy*, Twenty-Fifth Anniversary Papers, National Bureau of Economic Research, New York, 1946, p. 10.

²³ Joseph S. Davis, "Whither Now?," *Economic Research and the Development of Economic Science and Public Policy*, Twenty-Fifth Anniversary Papers, National Bureau of Economic Research, New York, 1946, p. 174.

phy as the following is necessary if we, with our frequent bias for "facts," are to grasp theory as a tangible tool and use it as an operational one. If points such as these, along with the thinking that leads to them, could be put across to graduate students in this field the place of theory in a rounded program of training would become apparent.

1. All economists should be familiar with formal economic theory and should have a general knowledge of the steps by which it has developed. Economists should gain this familiarity and knowledge for three principal reasons. First, any scientific endeavor requires the ability to carry out accurate deductive reasoning and the study of theory can develop this ability. Second, theory can suggest the kinds of hypotheses that will be useful in the study of economic phenomena. Third, the study of theory creates a realization of the importance of carefully framed concepts and indicates the manner in which they are constructed. (It does this though it be unable to supply ready made the operational kind of concepts needed in scientific inquiry.)

2. Economic theory is not restricted to the formal kind presented in text books and in established theory courses. Formal theory generally is more closely reasoned, more compactly integrated and more readily accessible than theory in other forms but all except the barest data gathering projects involve ideas and reasoning processes. Theory encompasses all efforts to explore the implications of bodies of knowledge or of sets of assumptions and includes a wide variety of attempts to formulate concepts and hypotheses.

3. Every research economist should be familiar with the business and production problems of the particular branch of economic enterprise he plans to study. This is one of the prime requisites for undertaking the inductive phases of research.

4. For a similar reason, every research economist should master statistics sufficiently to make it a tool readily available to him and efficient in his hands. He need not be able to build the tool nor improve it but should be able to talk with men in the statistical tool production business.

5. Every economist should recognize that we are well over a hundred years behind the physical and biological sciences and that we cannot catch up merely by producing something only superficially similar to the real thing. We must study many "un-

important" and "insignificant" things before we can even approach a scientific discussion of most topics treated so glibly by theorists today.

6. A man trained in theory alone may be a great teacher and a great thinker. In this he may make a most valuable contribution. Generally, however, he will be ill qualified to derive warranted assertions about real economic processes. He may also defeat the good he accomplishes as a teacher and thinker by concerted efforts to perpetuate the testimonial wall around the pedestal upon which theorists have been inclined to place themselves.

7. A man without training in theory is likely to frame his concepts loosely and may fail to recognize that carefully constructed hypotheses are important as guides to the collection and analysis of data. There are "facts" without number in the economic world. Vast effort can be poured into fact accumulation without obtaining the kind of data that will lead to conclusions with sound inferential value.

INHERITANCE OF FARM PROPERTY

W. L. GIBSON, JR. AND ARTHUR J. WALRATH

Virginia Polytechnic Institute and Bureau of Agricultural Economics

THE continuity of ownership and operation of farms in the United States is broken at least once each generation by the natural processes of life and death. This transfer of property rights forms a strategic point in land tenure at which problems, confusion, and uncertainties in agriculture frequently arise. In general, these disorders stem from the destruction of the essential unity of the farm as a going concern to permit equal inheritance. It requires many years to build a farm to a highly productive and efficient business. This is especially true where emphasis is placed upon the improvement of livestock or poultry through breeding and where the restoration of the fertility of the soil is necessary. The biological nature of farm production, the attainment of knowledge and experience of farming practices, and the usual gradual accumulation of the necessary capital investment are factors in this time requirement. It is not unusual, in fact it is more often the case, to find that an individual farmer has spent the greater part of his life in attaining the ownership of a productive and efficient farm. Yet, unless proper steps are taken, the benefits of his achievements may be destroyed at his death through the dispersal of his estate among his heirs. The result is the placement of a definite limit upon the productive powers of agriculture, as each generation has to begin anew the process of building a going concern in farming.

I

The framers of democracy in this country believed that full and unrestricted ownership of land was essential to freedom of individual opportunity, dependent upon ability and initiative rather than upon birth and land-tenure status. Thus, the famous Ordinance of 1787 banned entail and primogeniture in the Northwest Territory, and soon afterwards the older colonies, one after another, abolished feudal land-tenure practices. These laws to a large extent assured that our land system would not be feudal, and they deeply ingrained in our culture the concept of equality in inheritance, i.e., equal division among heirs in the settlement of estates. Property rights in land are held in the largest possible estate—the “fee simple,” under which the landowner is permitted to pass his prop-

erty to his heirs largely as he sees fit. This freedom of devise is subject only to the minor restrictions of dower rights¹ of the surviving wife and the limitation of entailing the estate beyond the life of a living person or persons plus twenty-one years. The instrument known as a will is the means through which the landowner can express his desires before death, and in the absence of a will, the laws of the several states determine the manner in which the property is to be divided. Based on the concept of equality in inheritance, the various state statutes, while varying in some respects, provide for an equal distribution of property among heirs. These statutes, in turn, have had a marked influence on the manner in which property is transferred by will.

The establishment of fee-simple ownership of land in the United States represented a complete break from the feudal system. In this respect it assumed the nature of an experiment. Doctor L. C. Gray, writing on the success of this experiment, has the following to say:²

The inheritance laws have thus helped to prevent the development of a landed aristocracy dependent upon the soil. This influence, coupled with the predominance of other means of investment in an industrial society, has served to prevent the ownership of land in the United States from becoming a prerequisite for entrance into certain social strata or into politics, as was long the case in many older countries.

The absence of numerous large landed estates has had a beneficial influence in the development of a well-balanced agriculture, particularly in the maintenance of the American ideal—the family-sized farm.

Continuing his discussion, Doctor Gray points out the experience in England where inheritance laws in the past tended to perpetuate large estates, and in France where inheritance laws have fostered excessive subdivision of real property. He then concludes, "The American inheritance laws have tended to establish a medium between these two (English and French) extremes. Neither the restricted aggregate production and potentially bad social conditions of the large landed estates nor the inefficiency and insufficiency of the small peasant holding are favored by our systems of inheritance."

This "medium" in our inheritance laws fosters the American ideal of freedom of individual opportunity dependent upon ability

¹ Curtesy rights exist in some states.

² L. C. Gray, *et al.*, "The Causes: Traditional Attitudes and Institutions," U. S. Dept. Agr. Yearbook, *Soils and Men*, 1933, p. 116.

and initiative. Yet our inheritance laws have not been entirely free from undesirable effects. Fortunately, the destruction of the former does not appear necessary for the correction of the latter. The imperfections lie in the succession practices which have been used and these practices can be modified within the framework of the inheritance laws. Better practices, not a change in principle, is the needed approach to land inheritance problems.

II

Little research in the United States has been directed specifically toward an analysis of land inheritance problems. Most of the investigations in which inheritance has received consideration deal largely with how farmers acquire ownership of farms or with broader phases of the farm-tenure process. In both cases, the consideration given inheritance has been confined to the amount of land or the number of farms in a certain region which was acquired wholly or in part through inheritance. A search of 15 bulletins and articles (table 2) revealed that only two were directed specifically toward inheritance one of which was on the *Migration of Agricultural Wealth by Inheritance*.³ However, several additional articles should be specifically mentioned. The article by L. C. Gray et al. previously cited is an excellent discussion of the system of inheritance, and it presents a good summary of some of the more important ways in which the passing of farm property through inheritance contributes to agricultural problems.

In 1927, Professor George S. Wehrwein gave a summary of data available, and specifically pointed out that inheritance, except in cases of only one heir, usually "means recapitalization of the farm in whole or in part."⁴ Professor H. W. Hannah has presented a discussion on the various ways farm property may be held, and he suggests methods of insuring the most economic disposition of the property in case of death.⁵ In addition, some studies have been made of special arrangements, known as "bonds of maintenance,"

³ Mimeograph Bulletin No. 65, Department of Rural Economics, Ohio State University and Ohio Agricultural Experiment Station, 1933.

For further information on the migration of agricultural wealth by inheritance see: F. R. Yoder, and A. A. Smick, *Migration of Farm Population and Flow of Farm Wealth*, Washington Agricultural Experiment Station Bulletin No. 315, 1935.

⁴ George S. Wehrwein, "The Problem of Inheritance in American Land Tenure," JOURNAL OF FARM ECONOMICS, Vol. IX, No. 2, April, 1927.

⁵ H. W. Hannah, "Family Interest in the Ownership of Farm Land," JOURNAL OF FARM ECONOMICS, Vol. XXIII, No. 4, November, 1941.

which are used in transferring the title to farm land, and some writers have mentioned the "Bohemian contracts."⁶

Inheritance may assist a farmer in acquiring an estate in the land he farms in a number of ways.

1. He may inherit a farm in its entirety, as in cases where there is only one heir. (The farm may or may not be fully equipped and stocked.)

2. He may inherit a farm in part and purchase the shares of the other heirs. (He may rent rather than purchase these shares, in which the case the farm is often operated as an estate. Specific rental may or may not be stipulated.)

3. A life interest in a farm may be inherited. (This is generally the case where a man leaves his farm to his surviving wife and at her death to their children.)

4. Where a farm is subdivided among several heirs he may be assigned a small tract as his inheritance and may either purchase or rent additional land. (In some cases he may offset the small size by combining his farming activities with non-agricultural employment—part-time farming.)

5. He may inherit money or other forms of personal property with which he purchases a farm in its entirety, or makes a down-payment. (In some cases where land is already owned he may add additional land to his unit.)

6. He may receive, as an advancement on an estate, financial assistance in obtaining land.

7. He may purchase a farm from his parents or other near relatives under exceptionally favorable financial conditions.

8. He may take over the home farm before the death of his parents by giving the parents an annuity in the form of an agreement to support them for the rest of their lives according to their station in life.

The extent to which inheritance has played a part in the acquiring of farm land in the United States by each of these eight ways is not known. Even though the various studies do not include data on each or all of the different ways, the data do illustrate the im-

⁶ C. F. Wehrwein, "Bonds of Maintenance as Aids in Acquiring Farm Ownership," *The Journal of Land and Public Utility Economics*, Vol. 8, No. 4, November, 1932.

K. H. Parsons, and E. O. Waples, *Keeping the Farm in the Family*, Wisconsin Agricultural Experiment Station Research Bulletin, No. 157, 1945.

J. O. Rankin, *Landlords of Nebraska Farms*, Nebraska Agricultural Experiment Station Bulletin No. 202, 1924.

portance of inheritance in the tenure process. The United States Department of Agriculture has made estimates of the number of farms that changed ownership by various methods during the period 1942-46.⁷ During this five-year period the ownership of 5.12 farms per 1,000 farms in the United States changed through inheritance or gift and an additional 8.70 farms through administrators' and executors' sales (table 1). In relation to all changes in ownership, inheritance and estate sales accounted for one in each five transfers. Inheritance was apparently of greater importance in the older regions of the United States and of lesser importance in the Mountain and Pacific states.

Similar estimates made for 1920-26 indicate that some 12 percent of the changes during that time were through inheritance and gift.⁸ Apparently, inheritance plays a relatively small part in the total transfer of farm property. On the other hand, its importance in transferring farm property from one generation to the next is greater than the figures indicate (table 2).

The importance of inheritance in farm realty is also indicated by data from farm tenure studies, especially those investigations on the concept of the agricultural ladder.⁹ Dr. W. J. Spillman, in 1919, reported on his studies of how farm ownership was acquired in five mid-western states. Of the 2,112 farm operators included in the studies, 24 percent obtained their first farm land through inheritance. In contrast, in 1920, a similar study in Kansas showed only 11 percent of the farm operators had acquired their first farm land by this method, and in 1928, Hibbard pointed out that only 12.5 percent of the farmers in Wisconsin had inherited their farms. However, Hibbard states, "Inheritance plays a much bigger role than is indicated by the small percentage of farms acquired wholly by this method. . . . Inheritances are usually in smaller amounts than whole farms, and still oftener in the form of money than land."¹⁰ This point is substantiated by later studies. In 1931, a study of the agricultural ladder in Ohio showed that 29 percent of the farm operators acquired all of their land and an additional 10 percent

⁷ M. M. Regan, and A. R. Johnson, *The Farm Real Estate Situation, 1945-46*, United States Department of Agriculture Circular No. 754, December, 1946.

⁸ E. H. Wiecking, *The Farm Real Estate Situation, 1926*, United States Department of Agriculture Department Circular No. 377, February, 1927.

⁹ For reference to these studies see the footnotes to table 2.

¹⁰ B. H. Hibbard, and G. A. Peterson, *How Wisconsin Farmers Become Farm Owners*, Wisconsin Agricultural Experiment Station Bulletin No. 402, August, 1928, p. 15.

obtained a part of their land through inheritance. Likewise, a study in Delaware revealed similar results except the percentage of those who acquired their farm land wholly by inheritance was smaller and those in part much larger.

Several studies have reported interesting data on the importance of inheritance in the acquiring of farms by landlords. Nebraska reported in 1924 that 20 percent of the landlords had acquired their land through inheritance. This study and another made in Nebraska two years later set forth an interesting comparison be-

TABLE 1. ESTIMATED NUMBER OF FARMS CHANGING OWNERSHIP BY INHERITANCE AND ESTATE SALES PER 1,000 OF ALL FARMS, BY GEOGRAPHIC DIVISIONS, AVERAGE FOR 5-YEAR PERIOD 1942-46¹

Geographic division	Inheritance and gift	Administrators' and executors' sales ²	All methods of changing ownership
New England	6.94	6.12	53.68
Middle Atlantic	5.66	9.30	64.34
East North Central	4.78	11.08	71.88
West North Central	4.42	10.18	80.38
South Atlantic	6.76	8.78	60.74
East South Central	4.76	7.42	71.36
West South Central	5.06	6.32	69.08
Mountain	3.68	6.28	67.98
Pacific	4.32	6.50	75.86
United States	5.12	8.70	70.28

¹ M. M. Regan, and A. R. Johnson, *The Farm Real Estate Situation, 1945-46*, United States Department of Agriculture Circular No. 754, December, 1946.

² Includes all other sales in settlement of estates.

tween landlords and owner-operators, the latter reporting 23.9 percent as compared to 20 percent in the former. H. H. Turner in his study for the United States as a whole found that 27 percent of the landlords inherited a part of their land, and 11 percent inherited all the farm land they owned. Similar results were found for landlords in a study on Delaware, except here the percentage acquiring their farms wholly through inheritance was greater.

A number of other interesting relationships is found in these studies. Professor E. D. Tetreau, in his study of Ohio farmers, points out that inheritance "Is of far more importance in the low-tenancy (Union) than in the high-tenancy county (Madison). In the former, 43 percent of the owners were aided by some form

TABLE 2.—ACQUISITION OF FARMS THROUGH INHERITANCE IN UNITED STATES

Location	Year Pub- lished	Type of study	Tenure	No. of farms in study	Importance of inheritance ¹
Five Mid-Western states ²	1919	Agricultural Ladder	Owners	2, 112	24% acquired first farm land through inheritance.
Kansas ³	1920	Agricultural Ladder	Owners	2, 533	11% acquired first farm land through inheritance.
Massachusetts ⁴	1923	Farm Ownership	Owners	538	25.4% acquired farms through inheritance.
Nebraska ⁵	1924	Landlords	Landlords	535	20% acquired land through inheritance.
Nebraska ⁶	1926	Agricultural Ladder	Owners	616	23.9% acquired land through inheritance.
United States ⁷	1926	Ownership of tenant farms	Landlords	23, 963	(27% acquired farms in part through inheritance. (11% acquired farms wholly through inheritance.
Wisconsin ⁸	1928	Agricultural Ladder	Owners	2, 051	12.5% acquired all of farm land through inheritance.
South Carolina ⁹	1928	Land Prices and Ownership	Owners	170	26% acquired the farms through inheritance.
Ohio ¹⁰	1931	Agricultural Ladder	Owners	340	(29% acquired all of farm land through inheritance. (39% acquired a part or all of farm land through inheritance.
Delaware ¹¹	1932	Farm Tenancy	{Landlords Owner- Operators	280 79	{40.1% acquired all of farm land through inheritance. 13.7% acquired a part of farm land through inheritance. 16.2% acquired all of farm land through inheritance.
Arkansas ¹²	1937	Plantation operations	Owners	89*	(25.4% acquired a part of farm land through inheritance.
Tennessee ¹³	1938	Inheritance	Owner- operators and tenants	457	42.5% of the total acreage acquired through inheritance. 44.4% had received some inheritance, either land or personal property which permitted the purchase of land or working capital for advancement in tenure status.
Kentucky ¹⁴	1944	Land Tenure	Owner- operators		More than 50% inherited all or a part of their farms.

Footnotes for table on page 945.

of inheritance, in the latter, only 34 percent."¹¹ The authors of a study in South Carolina noted, "There is evidence to indicate that the percentage of men who inherit farm land is less now (1928) than it was in the past; higher land values, increased population and smaller farms are some causes of this."¹² Several other studies have also reported a decline in the importance of inheritance. On the relation of owner-operators to previous owners and of tenants to landlords, a study of farm tenancy in central Illinois has the following to say. "Nearly two-thirds of the owner-operators were sons or sons-in-law of previous owners. Less than one-fourth of the tenants were sons or sons-in-law of their landlords, while nearly one-third of the farms classed as tenant farms were owned by fathers, mothers, or other near relatives of the tenant or his wife."¹³

¹¹ "The 'Agricultural Ladder' in the Careers of 610 Ohio Farmers," *The Journal of Land and Public Utility Economics*, Vol. VII, No. 3, August, 1931, p. 239.

¹² W. C. Jensen, and B. A. Russell, *Studies in Farm Land Prices and Ownership*, South Carolina Agricultural Experiment Station Bulletin No. 247, March, 1928, p. 34.

¹³ G. W. Kuhlman, "A Study of Tenancy in Central Illinois," *The Journal of Land and Public Utility Economics*, Vol. III, No. 3, August, 1927, p. 294.

(Explanation to notes for table 2 on facing page)

* Plantations.

¹ Includes "gifts."

² W. J. Spillman, "The Agricultural Ladder," *American Economic Review, Supplement*, March, 1919.

³ *Director's Report*, 1918-19, Kansas Agricultural Experiment Station, 1920, p. 11.

⁴ L. P. Jefferson, "A Study of Farm Ownership in Massachusetts," *Journal of Farm Economics*, Vol. V, No. 4, October 1923, Table IV, p. 217.

⁵ J. O. Rankin, *Landlords of Nebraska Farms*, Nebraska Agricultural Experiment Station Bul. No. 202, 1924, Table 2, p. 10.

⁶ J. O. Rankin, *Steps to Nebraska Farm Ownership*, Nebraska Agricultural Experiment Station Bul. No. 210, 1926, Table 9, p. 24.

⁷ H. A. Turner, *The Ownership of Tenant Farms in the United States*, United States Department of Agriculture Bul. No. 1432, 1926, Table 24, p. 40.

⁸ B. H. Hibbard, and G. A. Peterson, *How Wisconsin Farmers Become Farm Owners*, Wisconsin Agricultural Experiment Station Bul. No. 402, 1928, Table VII, p. 16.

⁹ W. C. Jensen, and B. A. Russell, *Studies of Farm Land Prices and Ownership*, South Carolina Agricultural Experiment Station Bul. No. 247, 1928, p. 37.

¹⁰ E. D. Tetreau, "The 'Agricultural Ladder' in the Careers of 610 Ohio Farmers," *The Journal of Land and Public Utility Economics*, Vol. VII, No. 3, August, 1931, Table II, p. 240.

¹¹ R. O. Bausman, *Farm Tenancy in Delaware*, Delaware Agricultural Experiment Station Bul. No. 178, 1932, pp. 62-3.

¹² H. W. Blalock, *Plantation Operations of Landlords and Tenants in Arkansas*, Arkansas Agricultural Experiment Station Bul. No. 339, Table 1, p. 8.

¹³ C. E. Allred, and E. E. Briner, *Inheritance as a Factor in the Progress of Tennessee Farmers*, Rural Research Series Monograph No. 88, Tennessee Agricultural Experiment Station, 1938, Table V, p. 7.

¹⁴ J. H. Bondurant, *Land Tenure in Southern Logan County, Kentucky*, Kentucky Agricultural Experiment Station Bul. No. 464, 1944, p. 22.

A study made in Tennessee warrants special mention.¹⁴ Rather than confining attention to the ownership of farm land, the acquisition of wealth through inheritance was shown to be a factor in the advancement of tenure status. Forty-eight percent of the wage workers who received an inheritance became tenants and 47 percent became owners. Only 3.1 percent of the wage workers had no change in status with receipt of their inheritance. Likewise, 72 percent of the tenants became owners and 70 percent of the owners purchased additional land at the time of their inheritance.¹⁵ The amount of inheritance in terms of dollars varied widely and was significant in determining the extent of change in land tenure status. "Those who received more than \$4,000 inheritance were either owners at the time of inheriting or became owners upon inheriting, except two farmers who had not yet found desirable farms to purchase, but who expected to purchase."¹⁶ However, the time of inheritance was also of great importance. "Sometimes a small amount, at a critical time in the farmer's career, may have more significance than a larger amount would have at another time."¹⁷

III

The laws of inheritance permit wide discretion on the part of property owners in the way they may dispose of their properties by will. The practices used depend upon the judgment of the testator and the degree of responsibility he assumes.¹⁸ Therefore, the approach to the solution of farm land inheritance problems lies in the education of property owners as to the functions of farm succession and in providing them with a better knowledge of the ways certain practices operate in violation of these functions.

The functions of inheritance are:

¹⁴ C. E. Allred and E. E. Briner, *Inheritance as a Factor in the Progress of Tennessee Farmers*, Rural Research Series Monograph No. 88, Tennessee Agricultural Experiment Station, 1938.

¹⁵ *Ibid.*, Table XIII, p. 16.

¹⁶ *Ibid.*, p. 13.

¹⁷ *Ibid.*, p. 1.

¹⁸ It might be assumed that intestate cases are also a part of the judgment of the property owners; that is, in their judgment the methods provided by the state laws for intestacy are adequate for their individual situations. It is possible to question the soundness of that judgment. Recent work in Virginia has brought out the fact that few farm owners who do not have a will know how the laws of descent will operate in their particular cases. They might judge that the law is adequate for their situation, but their judgment in many cases is based upon a misunderstanding of the law.

1. To provide for the security of the surviving wife or husband until her or his death.
2. To provide for equitable treatment of the children or other heirs.
3. To transfer ownership with a minimum of friction, confusion, and uncertainty in the process.
4. To provide an ownership pattern which does not result in the exploitation of the farm resources and inefficient use of the land.

The first two of the named functions are of primary importance. This is confirmed by the state laws of descent where dower and curtesy rights are one of the few limitations placed upon inheritance, and are but an expression of the thought of our lawmakers as to the importance of security for the surviving spouse in the inheritance process. Also, most wills and other farm-transfer arrangements provide for the security of the surviving spouse in some manner. The importance of the second function is also sanctioned by the laws of descent, in that they provide for equal division among children in intestate cases. However, the belief that equal division necessarily means equitable treatment must be guarded against.

Imperfections in the succession practices used by farmers are known to create problems which hinder the achievement of the purposes of inheritance as stated above.

First, the philosophy of distributing the property equally among the several heirs frequently results in a complete disintegration of the farm as a going concern. Where the land is actually divided, often the effect is to create several units too small for efficient use of resources or for full employment of the operator's labor. There is little doubt that the small farm problem in many parts of the United States has developed in part from equal subdivision among heirs in both testate and intestate inheritance.

Classic examples can be found upon a casual examination of the deed and will books of any county. This problem has been particularly prevalent in areas like the southern Appalachian highlands, where a high degree of economic isolation exists and where non-farm employment opportunities for the children are limited. Nor is it absent from our better farming regions. Professor Kuhlman, in a study of farm tenancy in central Illinois, says, "Many of these farms have been divided for purposes of inheritance until the individual holdings are not economic units."¹⁹ Doctor Gray has pointed

¹⁹ G. W. Kuhlman, *op. cit.*, page 294.

out the examples in Utah and eastern Idaho where "The land has been subdivided among the several heirs in such manner that there has developed in two generations a scattered small-field system somewhat comparable to that of Europe in the Middle Ages. This has come about largely as a consequence of the desire to distribute good and poor land equally among the heirs even though the holdings consist of six or eight parcels each separated by a mile or more."²⁰

Studies made in New Mexico have shown that this equal subdivision among heirs has resulted in long narrow boundaries which are costly to fence and inefficient to operate. In other regions, many odd-shaped farms have been created by men appointed to divide estates. Cases are known to exist where efforts to reconsolidate the original units has proved costly in time, labor, and capital.

The influence of the small farms upon soil conservation is of particular importance. Where the farm is small, the size of the acreage places a definite limitation upon the selection of crop land, and in many cases land unsuited for cropping has been brought into cultivation. This is especially important in the intensive one-crop areas, where soil conservation requires a shift to alternative enterprises, usually general or livestock farming. The small farms have proved a definite handicap in making the shift.

In many instances where farms are subdivided among several heirs, each share does not become an individual farm unit, as frequently one heir, usually a son, buys the shares of the other heirs. In these cases the farm land remains intact, but the buyer may be in a poor bargaining position with regard to the purchase price, due to sentimental attachments to the home place, disagreement among members of the family, or because the death occurred during a period of inflated prices of farm land. Where this occurs the intention of the testator to divide his estate equally among his heirs is violated. Furthermore, abnormally heavy mortgages may result from the endeavor to obtain funds needed to purchase the shares of the other heirs. This often leads to exploitative farming and a relatively low standard of living in order to meet the interest and principal payments.

It has been pointed out that equality rather than equitability guides our laws of descent. They are designed to meet the average

²⁰ L. C. Gray, et al., *op. cit.*, p. 117.

condition, and where individual situations vary from the average, the farm owner has full freedom to make adjustments through a will or other farm transfer arrangements. Frequently, one child has remained at home and has contributed materially to the maintenance of the farm during the declining years of his parents. In this way he also contributes to the welfare of the parents during their old age. Thus, equal division among heirs provides no compensation for these contributions, and it becomes necessary for the parents to stipulate in writing a more equitable division. With the increase of father-and-son partnerships in farming this particular situation attains great importance. Otherwise, the son who has remained on the farm and who had often spent time, labor, and capital toward building a high-producing herd of livestock and toward improving the farm land and buildings, will find his interest in the business unprotected at the death of his father.

Second, the time required in the settlement of estates creates a period during which the maintenance of the land and buildings and the proper utilization of the land are difficult to achieve. Often one or two years are required before court procedure permits the completion of a settlement, and cases are known in which a much longer period is required if minor heirs are involved. Under these circumstances, one of the heirs may take over the management of the farm, or if this is not possible, the farm may be rented to a tenant. In either case, the period of settlement may have adverse influences upon land use and farm management practices. Both the heir and the tenant are aware that their relationship to the farm will be significantly changed at the final settlement of the estate, and too often in such instances, there is an attitude of "drifting along" until the more permanent relationship is known.

Third, inheritance practices frequently give rise to a number of farm tenancy problems. Life estates devised to widows usually result in some form of tenancy under short-term leases during which time the maintenance of land and buildings is neglected. "A study of inheritance in three Iowa counties during a 10-year period indicates that approximately one-third of the testators bequeathed life estates in their acreages. The recipients of these life estates averaged 65 years of age. Since they often have little or no interest in the property except as a means of income during their lifetime, and since their average age is so advanced, the system of tenancy arising under such circumstances is often particularly

bad.”²¹ Under other conditions life estates frequently result in exploitation of the land when the recipient endeavors to obtain the largest possible cash income during the life interest.

Farms passing under intestate inheritance, especially where minor heirs are involved, often result in tenant operation under very unstable conditions. Where court procedures are involved the degree of instability may be greatly increased. Inheritance may create tenancy when farms are devised to heirs who are not interested in farming. Under these cases, the devisee may elect to keep the farm as an investment or he may simply want to keep the home place in the family name. In a study made in Delaware, “about two-fifths of the farms owned by landlords in the areas studied were inherited outright, and inheritance played a part in the ownership of over one-half of them.”²² Insofar as inheritance transfers farm land to landlords, it makes the attainment of ownership by farmers more difficult. This condition has an accumulative effect as the probability of the children of a landlord being interested in farming as a source of employment is less than with children of farm operators. On the other hand, there is the probability that an owner-operator might acquire the land in the settlement of the landlord’s estate, particularly if two or more heirs are involved.

Fourth, there is a tendency for inheritance to transfer wealth from rural to urban ownership and from rural to urban communities. This drain upon rural wealth is a result of the large net migration of farm youth to the cities. Whenever one heir remains on the farm and buys the shares of the other heirs who have moved to the city, wealth moves from an agricultural region to an urban community. Analysis of 406 farm estates in Franklin and Madison Counties, Ohio, 1919–32, showed that approximately 20 percent of the total net valuation of the estates passed to heirs who lived in cities.²³ It is doubtful that the inheritance of urban wealth by rural heirs is sufficient to offset this flow of wealth. However, this wealth migration is not peculiar to our inheritance system as it takes place when farms are sold and the farmer moves to town, or, as is often the case, when he retires to town on his capital accumulation.

²¹ L. C. Gray, et al., *op. cit.*, page 118.

²² R. O. Bausman, *Farm Tenancy in Delaware*, Delaware Agricultural Experiment Station Bulletin No. 178, 1932, p. 62.

²³ E. D. Tetreau, *Migration of Agricultural Wealth by Inheritance*, Mimeograph Bulletin No. 65, Department of Rural Economics, Ohio State University and Ohio Agricultural Experiment Station, 1933.

IV

The best methods of inheritance and transfer of farm property from one generation to the next are not known. Some ways have been mentioned in which inheritance practices have contributed materially to land problems. Yet their full effect is still unknown. More knowledge is needed as to the extent of land transferred through inheritance, the amount of land held in life estates, undivided estates and unsettled estates, the manner of the uncertainties and confusion which arise from the inheritance process, the instability created in the land tenure system, the destruction of the farm as a going concern, and the effect upon conservation of land resources. It is known that in some families the transfer of family property is handled more effectively than in others. A good approach would be to study the practices used by these families in comparison to those used by other families where problems have arisen. With the knowledge that can be gained as to what constitutes successful and unsuccessful practices, we shall be better equipped to advise farmers regarding the distribution of their property to their heirs.

NOTES

WHY FARMERS DISTRUST LABOR UNIONS

OUR producer economy is today engaged in an attempt to solve its most fundamental problem. The problem: How to reconcile the opposed interests of the various producer groups. If the problem is not solved, the economy bids fair to perish from internecine warfare if not from attacks from without.

Whether or not the reconciliation of interests can be achieved without de-emphasizing producer interests is for the moment immaterial. Enough only to say that the effort is laudable, and if made intelligently can have nothing less than some degree of beneficial result.

One field in which the conflict of opposing interests—real or fancied—is most bitter is the field relationships between farmer and urban laborer. Because these two groups are separated by the distributors of their respective products, they have little opportunity to meet and talk over their differences; and to discover that their differences are not so real and clear-cut as they appear from a distance. Rural-urban conferences are becoming more popular in their efforts to educate workers, farmers, and professional people to better understanding of the problems, aims and methods of their producer opposites. But they are sorely limited in coverage as yet; They reach all too few of those concerned.

Educators in the field of agriculture are increasingly aware of the necessity for some understanding of the problems of urban laborers by farmers and farm leaders. The objective of this article is to attempt an explanation—not a solution—of some of the beliefs current among many farmers and farm leaders regarding laborers, and especially labor unions. While it is manifestly impossible to present a conclusive analysis in so short a paper, it is hoped that a few basic factors may be mentioned which will throw some light on the development of the present-day farmer attitude towards urban laborers.

Although farmer animosity toward labor unions fluctuates in intensity—reaching peaks in periods such as the early 20's, the mid 30's, and today, the fundamental causes remain at all times. They are the factors which must be brought to light and examined. A list of all these factors would be long. But inasmuch as many of

them are outgrowths of other causes they may be omitted as secondary. Primarily, the basic factors can be given as follows:

The farmer's deep-rooted belief in the institution of private property.

The influx of immigrants from the south of Europe during the late 1800's and early 1900's.

The continuing union drive for a shorter work week.

Strikes, radical labor leaders, and bad publicity.

It is not the intention of this paper either to condone or condemn. A discussion of the factors listed, their growth and their results and interpretations is the sole purpose.

First, and probably most basic of all forces involved in farmer attitudes towards urban laborers is the farmer's belief in private property. Tenant farmers are no exception to this. Even though some of them may actually prefer tenancy to the risks of ownership, they nonetheless will defend to the hilt their right to private property.

Do urban laborers oppose the institution of private property? Emphatically no! Then why or how can it be a factor? The answer to that involves a brief historical review including an interesting sidelight on how propaganda, together with apparently opposing interests, can misdirect the thinking of individuals and groups. "Misdirect" is used here in the sense of directing individuals or groups to believe things which are not true of certain other individuals or groups.

The opportunity to obtain free land and to acquire private property was probably the most important factor in retarding the growth of unionism in the United States during the 1800's.¹ It was only after the Pacific Ocean was reached and the lands between it and the Mississippi were settled that the unions began to have strong popular appeal. Millis and Montgomery list this as a dominant factor in the relative lack of class consciousness on the part of the American worker until that time.²

As free land became more scarce, as large industrial corporations developed, the difficulties in entering the entrepreneurial class rapidly increased. The American worker gradually and reluctantly accepted the fact that he would remain a hired worker all his life.

¹ Millis and Montgomery, *Organized Labor*, McGraw-Hill Book Co., New York, 1945, p. 13.

² *Op. cit.*

He began to develop a more acute class consciousness—aided by intellectuals in the labor movement.

This does not mean that the American workman was losing his belief in private property. Far from it; the traditional dream of the urban laborer—to earn some money, acquire a bank account, and then retire to a little chicken farm is active proof of this fact. The laborer may have been forced to abandon his desire and hope of becoming a farmer during his producing life, but he could and did maintain his dream of a bucolic old age.

Further evidence of the desire of the American worker to rise out of his class was his fanatic espousal of producer cooperatives, of land reforms, the Free Silver movement, Henry George's single tax plan, and the ideological, reformist Knights of Labor. For these movements, if they did not offer free land to every man at least promised more equitable distribution of property and the means of production.

What has been termed "the paradox of farmer-laborer relations" is the historical fact of farmer-laborer agreement on political issues simultaneously with opposition on economic grounds.

Farmers allied themselves with labor groups in backing many of the land reform schemes, taxation and monetary programs of the 19th century. They agreed largely in their approval of Theodore Roosevelt's trustbusting, with Woodrow Wilson's New Freedoms, with the progressive income tax, with the Federal Reserve program, even with much of the New Deal philosophy.

But any fraternity that farmers as a group felt for labor unions was greatly dispersed with the decadence in the 1890's of the Knights of Labor, and with the emergence of the "pure and simple unionism" of Samuel Gompers' American Federation of Labor. Pure and simple unionism was based on the idea that wage earners were a separate class in a producer economy. They must stick together, avoid politics, and limit their activities to the immediate economic problems of wages, working conditions, and hours of labor. Labor became for all practical purposes a producer group interested only in getting as much as it could of the national pie.

As such the AFL prospered mightily, numerically. And during the first world war, which it supported patriotically, it gained many concessions from the government. Then the war was over, and the labor-management fight was resumed. Business was more shrewd this time, however, and used more subtle and effective

methods. Calling it the "American Plan," and using the yellow dog contract and the blacklist as basic weapons, management simultaneously disarmed their employees by encouraging company-sponsored unions. They set up personnel departments as evidence of their sometimes sincere interest in the workers.

During this same period the nation was undergoing a "red" scare of major proportions. Management wisely capitalized on the situation. Quoting Millis and Montgomery:

Powerfully favoring the "American Plan," also, were the post-war anti-'red' hysteria, which for a time furnished to millions of middleclass people, a psychological outlet for the hysteria and emotionalism engendered during the war, and which could easily be turned against labor organizations and their leaders, and the success of the appeal to the farmers' organizations that they make common cause with the employers against the monopolistic closed shop."³

It was of course a simple and natural thing for the farmer to accept these charges against unionism. Strikes and riots in the cities, and occasional massacres in the coal fields served to revitalize his suspicions at frequent intervals. It was immaterial who was at fault. Where there's smoke, there's fire, and even in those cases where management was the offender, it must have had plenty of reason. How can you deal with foreigners and communists? The IWW was nearly finished, but it had left its legacy of hate and fear.

Attributing to all laborers and their unions the radical, revolutionary objectives of isolated bomb throwers and the lawless IWW was normal, aided and abetted as it was by certain segments of management, and by the loud and emotional press.

The farmer was afraid for his property. If the unions took over the factories, the next step, taking over the farms, would be a simple matter. So, although the laborer believed in private property, and did not want to own the factories, the farmer had no way of knowing this. To him, industrial democracy meant worker ownership and control of the factories, first step to socialization of the nation.

Perlman recognized this situation in the late 20's when he said:

A Bolshevik *coup d'état* in America would mean a civil war to the bitter end, and a war in which the numerous class of farmers would join the capitalists in the defense of the institution of private property⁴

³ *Op. cit.*, p. 167.

⁴ Selig Perlman, *Trade Unionism in the United States*, p. 302.

Perlman also recognized the American unionist's bent to conservatism in a further statement.

... American trade unionism ... seems in a fair way to continue its conservative function—so long as no overpowering open-shop movement or 'trustification' will break up the trade unions or render them sterile.⁵

Thus, the farmer's belief in private property became a major force in his dislike for labor unions as he thought he saw certain proof of labor intent to socialize the nation and destroy the institution of private property.

Mentioned earlier, the influx of immigrants from south Europe was a factor in developing suspicion of laborers among the farm population. At least three important phenomena were associated with this immigration and its effects.

One: managerial and political opportunities were largely barred to the immigrants. Yet there were among them intellectuals and men of ability. Their genius had to have an outlet, and so they engaged in labor union activities. Theirs was the social reform program designed to give the worker a voice in his business, to obtain for him political and social rights as a class. This was in contrast to the early American Knights of Labor brand of unionism which sought to lift the worker out of his worker class and also was opposed to the producer unionism of Samuel Gompers' AFL. To ally all unionism with the Socialist-minded unionism of the immigrant intellectual was a simple procedure in the American middle-class mentality.

A second point: the influx of the immigrants, even without the intellectuals, was important. Farmers traditionally suspected foreigners. Anything might be expected of the uneducated, clan-nish Italians, Greeks, Slavs. And this attitude was fostered by the "native" American workers, immigrants or sons of immigrants from north Europe, which brings up the third point.

Oftentimes the immigrants were used as strike breakers and union breakers by management. They were unskilled, but new types of machines were introduced which the immigrants soon mastered, and which could displace many skilled workmen. So the unions, largely trades organizations, developed closed shops to bar the immigrants from the jobs. And farmers voted with laborers for the imposition of immigration restrictions.

The continued union drive for a shorter work day and work week

⁵ *Ibid.*, pp. 305-6.

is another factor making for misunderstanding. To the farmer who talks of his own ten, twelve, and fourteen-hour workday—and who sometimes does work that long—the forty-hour week and the eight-hour day are hard to justify.

To the laborer who demands this work schedule, it is a simple and reasonable request. When work is plentiful, he is not so insistent on the forty-hour week. There is no need to worry when all have jobs, but when work is scarce, he believes, somewhat mistakenly it is true, that shorter work weeks mean jobs for more men, pay-checks, even though small, for everybody. Having a job to work at is very important to the worker. It is a matter of self-respect. The farmer who has reluctantly accepted relief goods in depression times can understand this. He lacks, however, the experience of having nothing to do. There is always work on a farm, even if it doesn't return an income. It is the fear of unemployment which is partly responsible for shorter hours agitation, and mainly responsible for "feather-bedding," for slowdowns and make-work practices, for jurisdictional strikes and other seemingly anti-social labor activities.

A second factor in short hour drives is the steady pace at which many laborers work, the extremely monotonous and tensioned strain of supervised effort. Eight hours of constant attendance on a machine or assembly line, or on a surprisingly competitive construction job (where a carpenter or bricklayer can not be fired, but always can be "laid off") is very fatiguing. Many farm boys and men who worked on war defense jobs can testify to this.

Consideration of the urban laborer's working hours must also take into account the additional time spent in commuting, which may run from one to three or four hours daily.

Evidence that shorter hours have been an important consideration in forming farm attitudes is the statement from the 1919 and 1920 convention of the American Farm Bureau Federation:

... a large factor in the high cost of living is the curtailment of production through short hours, lessened efficiency of labor and strikes.⁶

Strikes have been and continue to be red flags before the farmer's eyes despite the relatively infinitesimal time actually lost through strikes. All the time lost from strikes during the war, for example, did not amount to the time put in on national holidays by the shipyard workers alone. Some strikes, they admit are justified but

⁶ Minutes of American Farm Bureau Federation Convention, 1919 and 1920.

most of them are not. The American Farm Bureau Federation in its 1946 convention agreed upon "... the privilege to strike by employees ..." with provisions.⁷ Without going into the justification or unjustification of any strike policies, it is sufficient to say that strikes leave a bad impression on the public. Unionists recognize this fact; so do the newspapers which play them up so consistently.

Bad publicity, in fact, has often been as important item. Newspapers and magazines live on the sensational. They are largely the property of management, and naturally speak for management. Unions have been slow to learn public relations and have often done a better job than their opposition in placing themselves in unfavorable positions.

Lastly, radical or dictatorial labor leaders have caused much anti-labor feeling. Whether or not they have been in the right in given instances, their actions and speeches have been oftentimes ill-advised. Education of the farmer on labor unions must take account of this latter fact.

The foregoing discussion has presented some of the reasons why farmers feel as they do about laborers and labor unions. The reasons are understandable and not to the discredit of the farmers. But the necessity of educating the farmer to a more understanding view of his city brother is obvious. (Laborers have distorted pictures of farmers too, of course, the main theme of which is doubtless envy.)

That many farm groups and farm leaders are endeavoring to evaluate labor unions objectively is more than evidenced by a 1945 issue of the CIO *Economic Outlook* bulletin which cites The National Farmers Union, "... many state and county officials ..." of the American Farm Bureau, "... sections of the National Grange," and various "farm state congressmen" as "fearless friends of labor."⁸ From such a naturally biased source, one can assume that there are indeed many farm leaders who are trying to promote better laborer-farmer understanding.

R. M. KING

State College of Washington

⁷ American Farm Bureau Federation, *Resolutions*, 28th annual convention, San Francisco, California, December 12, 1946, p. 11.

⁸ *Economic Outlook*, Congress of Industrial Organization, 718 Jackson Place, N.W., Washington 6, D. C., September 1945, p. 8.

ESTIMATING THE VALUE OF CITRUS FRUIT AS IT DEVELOPS¹

CITRUS groves increase in value as they increase in age and productiveness. Citrus fruit also increases in value as it develops. This study is an attempt at a method of approximating fruit value by months from the bloom to mature fruit. Such information is often very valuable in appraisals for the settlement of estates, setting fruit values upon sale of grove, and for other purposes.

This method is based upon the average cost of labor and materials by months for the seasons of 1940-41 and 1944-45, and it is assumed that the monthly increases in fruit value are in direct proportion to this cost. The former season was selected as it represents conditions prior to the recent war, while the latter is the most recently completed season of the citrus cost of production work of the Florida Agricultural Extension Service. It was thought that the 2 seasons selected would be a better basis for this purpose than the 2 most recent seasons. The 1940-41 season represents 221 groves over 10 years of age containing 7685 acres, and the 1944-45 season represents 160 groves containing 5474 acres.

The per-acre value of the fruit at maturity is determined by the marketable production and price per box. In arriving at the estimated value of maturing fruit, it is necessary to estimate the production and the on-tree price of the fruit as of its maturity. This is quite difficult during the early months of the season but very often the circumstances making such values desirable do not arise until several months have elapsed. In such cases the time for making the estimate is nearer the time of fruit maturity and, thus adds to the accuracy.

Little is discernible concerning the amount of bloom prior to the opening of the flowers; hence, March is here taken as being the first month for which an estimate might be made of the quantity of blooms as an indication of what might be expected in the way of a fruit crop. Since all kinds and varieties of citrus bloom at approximately the same time, March is used as the first month for beginning estimates of fruit values for oranges, grapefruit, and tangerines.

¹ The writer is indebted to Dr. C. V. Noble and Dr. M. A. Brooker, Department of Agricultural Economics, University of Florida, who read the manuscript and made helpful suggestions.

The time required for fruit to mature varies with the kind and variety of citrus. For example, Parson Brown oranges mature earlier than Valencia oranges. For this work the time to maturity is considered according to kind and maturity season, as follows:

	Month Attains Maturity or Full Value	Number of Months in Maturing
Early oranges	October	8
Midseason oranges	December	10
Late oranges	February	12
Temples	December	10
Tangerines	December	10
Grapefruit	November	9
Mixed kinds and varieties	December	10

Late oranges constitute the only group extending through the entire year. Consequently, the value distribution is the same as the input distribution for the year. All other groups extend 10 months or less. The value distribution for these groups is the same as the input distribution for the months involved, although the expenses of the months not included in the maturity period are in effect distributed over the period involved in proportion to the input of the months of that period. For example, the total expenses for the months of November, December, January, and February for early oranges are in effect distributed over the fruit-maturing period of 8 months in proportion to the expenses of each month from March through October (Table 1).

TABLE 1. CUMULATIVE PERCENTAGE DISTRIBUTION OF THE VALUE OF MATURING FRUIT BY MONTHS AND KINDS OF CITRUS

Month	Early Oranges	Midseason Oranges, Temples, Tangerines, Mixed Grove	Late Oranges	Grapefruit
March	9.7	8.0	6.7	8.6
April	21.5	17.7	14.8	19.1
May	38.8	31.9	26.7	34.5
June	66.0	54.2	45.4	58.6
July	75.0	61.6	51.6	66.6
August	85.8	70.5	59.0	76.2
September	92.2	75.8	63.4	81.9
October	100.0	82.3	68.8	88.9
November		92.6	77.4	100.0
December		100.0	83.6	
January			94.1	
February			100.0	

After estimating the production and price of the fruit the estimated value of fruit is obtained as of the time of its maturity. The attained fruit value as of any particular month is obtained by applying the cumulative percentage figure for the month desired to the estimated value of fruit at the end of the season. For example, the estimated value of Hamlin oranges (an early variety) in August would be 85.8 percent of their value at maturity.

Table 2 is an example of estimating the values of the fruit on a 25.7 acre grove containing different kinds of citrus as of the month of July by using Table 1. This method necessitates percentage calculations for each kind of citrus.

TABLE 2. APPROXIMATE CITRUS FRUIT VALUES IN JULY ON A 25.7 ACRE GROVE BY CALCULATIONS FROM TABLE 1

Kind	Variety	Acre- age	Esti- mated Yield in Boxes per Acre at Maturity	Estimated Price per Box at Maturity	Esti- mated Fruit Value per Acre at Ma- turity (2) × (3)	July Percentage of Ma- turity Value Table 1	July Value of Fruit per Acre (4) × (5)	Total Value (1) × (6)
		(1)	(2)	(3)	(4)	(5)	(6)	
Oranges								
Early	Parson Brown	8.1	330	\$1.00	\$627	75.0	\$470	\$3,607
Midseason	Pineapple	8.1	450	2.20	990	61.6	610	1,891
Late	Valencia	11.4	360	2.70	972	51.6	502	5,723
Grapefruit	Duncan	1.8	420	2.25	945	66.6	629	1,132
Tangerine	Dancy	1.3	440	2.00	880	61.6	542	705
Total		25.7						13,258

Approximate figures are obtained by using estimated production and price with Table 1, as illustrated in Table 2. Since these 2 estimates are necessary, a table of values (Table 3) is given which will facilitate arriving at values sufficiently close to the values obtained by use of Table 1 to make Table 3 useful in most cases. After arriving at the estimated value of fruit per acre at maturity, each monthly value may be read from the table by using the column headed by the figure nearest in value to that estimated. For example, if it is estimated that the yield will be 350 boxes per acre for grapefruit and that the price will be 80 cents, the value would be \$280 per acre at maturity. The nearest figure to this which heads a column in Table 3 is \$275. The value for any month could immediately be read from the table, which value would be near enough since both production and price figures are estimates. The greatest difference between the 2 sets of figures in the example

would be \$5 at the time of fruit maturity and for all other months the spread would be less.

In any case, the greatest spread for any variety between the figures in Table 3 and those arrived at by the use of Table 1 would

TABLE 3. VALUE OF FRUIT IN DOLLARS PER ACRE BY MONTHS FROM BLOOM TO MATURITY*

Value at Maturity	600	625	650	675	700	725	750	775	800	825	850	875	900	925	950	975	1000
Early Oranges																	
Mar.	58	61	63	65	68	70	73	75	78	80	82	85	87	90	92	95	97
Apr.	129	134	140	145	150	156	161	167	172	177	183	188	194	199	204	210	215
May	283	242	252	262	272	281	291	301	310	320	330	340	349	359	369	378	388
June	396	412	429	446	462	478	495	512	528	544	561	578	594	610	627	644	660
July	450	469	488	506	525	544	562	581	600	619	638	656	675	694	712	731	750
Aug.	515	536	558	579	601	622	644	665	686	708	729	751	772	794	815	837	858
Sept.	553	576	599	622	645	668	692	715	738	761	784	807	830	853	876	899	922
Oct.	600	625	650	675	700	725	750	775	800	825	850	875	900	925	950	975	1000
Midseason Oranges, Temples, Tangerines, and Mixed Groves																	
Mar.	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80
Apr.	106	111	115	119	124	128	133	137	142	146	150	155	159	164	168	173	177
May	191	199	207	215	223	231	239	247	255	263	271	279	287	295	303	311	319
June	325	339	352	366	379	393	406	420	434	447	461	474	488	501	515	528	542
July	370	385	400	416	431	447	462	477	493	508	524	539	554	570	585	601	616
Aug.	423	441	458	476	494	511	529	546	564	582	599	617	634	652	670	687	705
Sept.	455	474	493	512	531	550	568	587	606	625	644	663	682	701	720	739	758
Oct.	494	514	535	556	576	597	617	638	658	679	700	720	741	761	782	802	823
Nov.	556	579	602	625	648	671	694	718	741	764	787	810	833	857	880	903	926
Dec.	600	625	650	675	700	725	750	775	800	825	850	875	900	925	950	975	1000
Late Oranges																	
Mar.	40	42	44	45	47	49	50	52	54	55	57	59	60	62	64	65	67
Apr.	89	92	96	100	104	107	111	115	118	122	126	130	133	137	141	144	148
May	160	167	174	180	187	194	200	207	214	220	227	234	240	247	254	260	267
June	272	284	295	308	318	329	340	352	363	375	386	397	409	420	431	443	454
July	310	322	335	348	361	374	387	400	413	426	439	452	464	477	490	503	515
Aug.	354	369	384	398	413	428	442	457	472	487	502	516	531	546	560	575	590
Sept.	380	396	412	428	444	460	476	491	507	523	539	555	571	586	602	618	634
Oct.	413	430	447	464	482	499	516	533	550	568	585	602	619	636	654	671	688
Nov.	464	484	503	522	542	561	580	600	619	639	658	677	697	716	735	755	774
Dec.	502	522	543	564	585	606	627	648	669	690	711	732	752	773	794	815	836
Jan.	565	585	612	635	659	682	706	729	753	776	800	823	847	870	894	917	941
Feb.	600	625	650	675	700	725	750	775	800	825	850	875	900	925	950	975	1000
Grapefruit																	
Mar.	52	54	56	58	60	62	64	67	69	71	73	75	77	80	82	84	86
Apr.	115	119	124	129	134	138	143	148	153	158	162	167	172	177	181	186	191
May	207	216	224	233	242	250	259	267	276	285	293	302	310	319	328	336	345
June	352	366	381	396	410	425	440	454	469	483	498	513	527	542	557	571	586
July	400	416	433	450	466	483	500	516	533	549	566	583	599	616	633	649	666
Aug.	457	478	495	514	533	552	572	591	610	629	648	667	686	705	724	743	762
Sept.	491	512	532	553	573	594	614	635	655	676	696	717	737	757	778	799	819
Oct.	538	558	578	600	622	645	667	689	711	733	756	778	800	822	845	867	889
Nov.	600	625	650	675	700	725	750	775	800	825	850	875	900	925	950	975	1000

* To conserve space only a portion of Table 3 is here shown. The entire table includes monthly values by kinds of citrus for fruit values per acre at maturity at \$25 intervals from \$25 to \$1000.

be \$12.50 per acre and that would occur in the month of fruit maturity. The spread in the 2 values for months prior to maturity would be less than \$12.50 per acre with value differences least for the month of March.

Table 4 is an example of estimating the value of the fruit on the same 25.7 acre grove as of the month of July by using Table 3. Since

this method involves the substitution of the figure found in Table 3 that is nearest in value to the figure obtained by multiplying the estimated yield by the estimated price, slightly different results will be obtained. The estimated value of all fruit of this grove by the 2 methods differs only \$25. This small difference in estimated fruit value is offset by the time saved in calculation by using the second method.

TABLE 4. APPROXIMATE CITRUS FRUIT VALUES IN JULY ON A 25.7 ACRE GROVE BY READINGS FROM TABLE 3

Kind	Variety	Acreage	Estimated Yield in Boxes per Acre at Maturity	Estimated Price per Box at Maturity	Estimated Fruit Value per Acre at Maturity (2) × (3)	July Reading from Table 3 in Column Headed by Number Nearest in Value to Maturity Value (4)	Total Value (1) × (5)
		(1)	(2)	(3)	(4)	(5)	
Oranges							
Early	Parson Brown	8.1	330	\$1.00	\$627	\$469	\$3,799
Midseason	Pineapple	8.1	450	2.20	990	616	1,910
Late	Valencia	11.4	360	2.70	972	503	5,734
Grapefruit	Duncan	1.8	420	2.25	945	633	1,139
Tangerine	Dancy	1.3	440	2.00	880	539	701
Total		25.7					13,283

Table 5 is an example of a third method of estimating the value of the fruit for the same 25.7 acre grove. This method involves interpolating figures from Table 3 for more accuracy than the second method given. The first and third methods require about the same time for computation and arrive at approximately the same results; the results would be identical if the calculations were carried to the penny instead of to the nearest dollar. Both are more exact than the second method, but the second method is sufficiently accurate and time saving to merit rather universal use. In the event the second method is not desired, the deciding factor between the first and third methods would be the personal preference of the appraiser.

After deciding which one of the 3 methods is preferred, a printed or processed form should be obtained to expedite fruit value appraisal computations. This form should be similar in outline to the headings of columns in the table illustrating the method preferred (Tables 2, 4, or 5).

In the event of an off-season bloom in sufficient quantity to

TABLE 5. APPROXIMATE CITRUS FRUIT VALUES IN JULY ON A 25.7 ACRE GROVE BY USE OF AND INTERPOLATION FROM TABLE 3

Kind	Variety	Acreage	Estimated Yield in Boxes per Acre at Maturity	Estimated Price Per Box at Maturity	Estimated Value per Acre at Maturity (2) × (3)	July Reading From Table 3 in Column Headed by Number Nearest to but Less Than Maturity Value (4)	Adjustment for Difference in July Table Reading (5) and July Value of Maturity Figure (4)*	July Value of Maturity Figure (5) + (6)	Total Value (1) × (7)
Oranges									
Early	Parson Brown	8.1	330	\$1.90	\$627	\$469	\$ 2	\$471	\$3,815
Midseason	Pineapple	3.1	450	2.20	990	601	9	610	1,891
Late	Valencia	11.4	360	2.70	972	490	11	501	5,711
Grapefruit	Duncan	1.8	420	2.25	945	616	14	630	1,134
Tangerine	Dancy	1.3	440	2.00	880	539	3	542	705
Total		25.7							13,256

* Table 3 is made up from maturity value figures at \$25 intervals. The adjustment formula for monthly values is:

$$\text{Adjustment} = \frac{\left[\left(\frac{\text{Reading for month desired from column headed by figure nearest to but greater than maturity value}}{\text{Reading for month desired from column headed by figure nearest to but less than maturity value}} \right) \left[\left(\frac{\text{Estimated Maturity Value}}{\text{Value}} \right) - \left(\frac{\text{Column heading in Table 3 that is nearest to but less than maturity value}}{\text{maturity value}} \right) \right]}{\text{figure}}$$

Interval between maturity value figures in Table 3, or 25

Using this formula in the case of Parson Brown oranges for the month of July as an example:

$$\text{Adjustment} = \frac{(488 - 469) (627 - 625)}{25}, \text{ or } \frac{19 \times 2}{25}, \text{ or } 2.$$

increase materially the fruit production, a cumulative percentage distribution of the value of fruit could be formulated from the data given in Table 6.

TABLE 6. PERCENTAGE DISTRIBUTION BY MONTHS OF AVERAGE VALUE OF INPUT, 1940-41 AND 1944-45 SEASONS

Month	Percent
March	6.7
April	8.1
May	11.9
June	18.7
July	6.2
August	7.4
September	4.4
October	5.4
November	8.6
December	6.2
January	10.5
February	5.9
	100.0

TABLE 7. ADJUSTING MONTHLY PERCENTAGE POINTS TO ARRIVE AT CUMULATIVE PERCENTAGE DISTRIBUTION OF THE VALUE OF MATURING FRUIT BY MONTHS FOR LATE JUNE OR JULY BLOOM WITH FRUIT RIPENING IN APRIL

Month	Percentage Points	Adjusting Column (1) to Total 100	Cumulative Percentage Distribution
	(1)	(2)	(3)
July	6.2	8.9	8.9
August	7.4	10.7	19.6
September	4.4	6.3	25.9
October	5.4	7.8	33.7
November	8.6	12.4	46.1
December	6.2	8.9	55.0
January	10.5	15.1	70.1
February	5.9	8.5	78.6
March	6.7	9.7	88.3
April	8.1	11.7	100.0
Total	69.4	100.0	

A late June or July bloom, as is often the case, would mean that July would be the first month on which to place an estimate for this fruit. In the event such a bloom was of a kind and variety that the fruit would reach maturity the following April, the months to be considered would be July through April. The total of the per-

centage points for these 10 months is 69.4 (see Tables 6 and 7). To facilitate calculations these percentage points should be adjusted to total 100 by increasing each monthly figure the same percentage (Table 7).

In calculating the value of this fruit from a late June or July bloom the cumulative percentage figure in Column 3, Table 7, would be used in like manner as similar figures for the regular bloom as shown in Table 1. However, it would be necessary to calculate the fruit value by the method shown in Table 2. Figures from Table 3 could not be used for fruit from an off-season bloom.

In the event of a bloom that occurred at a time other than the 2 mentioned—regular and late June or July—a cumulative percentage distribution of value could be formulated from the figures given in Table 6 in like manner as the example shown in Table 7. Also, figures for a late June or July bloom that had a different length of maturity period than that shown in Table 7 could be derived similarly. With a crop of fruit set from a regular bloom and another crop set from an off-season bloom on the trees at the time of the appraisal, the 2 crops would be calculated separately and the sum of their values would be the estimate desired.

When 2 crops of fruit set from 2 regular blooms are on the trees at the same time, as often is the case of Valencia oranges, each crop would be calculated separately. The value of the crop of mature fruit would be obtained by multiplying the estimated yield by the going price or recent price offer. The value of the immature crop would be calculated as if no mature fruit were on the trees at the time of the appraisal. The sum of the values of the 2 crops would be the estimate for all fruit on the trees.

ZACH SAVAGE

*Florida Agricultural
Experiment Station*

AN EVALUATION OF "EVALUATING SOIL CONSERVATION"¹

IN THE article under consideration, Weitzell presents a criticism of previous methods of measuring the economic value of soil conservation, and proposes the "experimental method" as a desirable alternative. The objections to the "historical," the "budget,"

¹ E. C. Weitzell, this JOURNAL, Vol. XXIX, No. 2, May 1947, pp. 475-494.

and the "merit point" methods are generally valid, but the experimental method offers little relief from these same objections. One point on which there is complete agreement is that a workable approach to economic evaluation of conservation is sorely needed and is lacking at the present time. An analysis of these points will be made later but, first, some consideration of the approach to soil conservation evaluation via "soil conservation *per se*" is in order. Mr. Weitzell apparently uses the term "conservation" to denote those practices designed to prevent or reduce soil and water losses and plant nutrient leaching but omits the other aspects of soil depletion.

Any approach to conservation evaluation via the *per se* route presents a number of limitations. (a) This procedure entails the arbitrary selection of practices which are to be considered as the primary components of soil conservation. (b) It limits the investigation to the "wasting" of soil, water, and plant nutrients. (c) It mandates the selection of practices on the basis of *purpose in application*. (d) It separates soil conservation from farm organization and management. Presumably, those practices which are a part of the *farming system* in a particular area would not be soil conservation practices unless they were applied specifically for the reduction of soil, water, or nutrient losses.² It seems that in most cases the practice *per se*, in the light of its contribution to productivity maintenance, should be the criterion for assigning conservation merit rather than the *intended purpose* of the practice. (e) The conservation *per se* approach makes recourse to the accepted economic philosophy of conservation more difficult.

In selecting a definition of conservation for use in economic analysis, it is desirable to eliminate the arbitrary selection of components. Bunce³ uses the physical concept of conservation, exploitation, and improvement in conjunction with their economic parallels, maintenance, disinvestment, and investment. Under this definition, any input factor which contributes to the *maintenance* of soil resources is a conservation practice. Since in so many instances practices which are designed to prevent soil depletion (use of replaceable nutrients by crops) are also erosion preventives, it is often impossible or impractical to separate them. In fact, a treatment of con-

² Weitzell, op. cit., p. 476.

³ Arthur C. Bunce, *Economics of Soil Conservation*, The Iowa State College Press, Ames, Iowa. 1942, p. 10.

servation *per se* leads to the elimination of variables incapable of isolation. However valid the experimental method may be, its use may grant error in favor of explicitness. Even controlled experiments defy the isolation of benefits accruing to inputs designed to prevent or reduce "soil and water losses." From the standpoint of the individual, all conservation inputs are intended to enhance income on landed capital. Whether these inputs are intended for immediate effect or a flow of benefits is unimportant except as the time element and the rate of return on investment are important. Treatment of conservation as an attempt to maintain a particular level of physical productivity has considerable merit. In such treatment, all the contributing factors are considered. The elimination of related variables through controlled experiment does not erase the effect of those variables. *It merely postpones consideration until such time as projection to the universe is made.* In the projection of experimental results to specific areas (especially to broad areas) the difficulty of measurement may be transformed to difficulty of application.

The experimental method actually is a means of gathering data for conservation budgeting or of expanding or facilitating conservation budgeting or of expanding or facilitating conservation planning. It is undoubtedly a useful tool for demonstrating the potentiality of conservation practices. It is, however, much less valuable as a means of evaluating the economic benefits for broad areas. Case studies made under varying physical and economic conditions have fewer limitations. At least, the case method provides escape from the error which may be encountered by projecting experimental results to variable cases. Case studies reflect actual field conditions. Experimental results are useful guides, but their application to field conditions has resulted in invalid conclusions.

A number of questions may be raised in connection with the experimental method. (a) How is the effect of technology and the state of the arts to be measured? This method would make necessary a multitude of experiments with the various practices and combinations of practices under various stages of technological development if the effect of a changing state of the arts is to be measured. The effect of changing mechanization upon yields must be measured. The effects of timeliness of operation and advancements in plant and animal breeding must be measured. Separate experiments must be made for each combination of physical resources and

applied to varying economic conditions. (b) How is a monetary value to be placed upon labor and management? Charges for these factors would have to be varied according to varying conditions within rather narrow local areas. (c) What is the ratio of efficiency on the experimental plot to efficiency in the field? Errors in these considerations will multiply the error in total benefits unless the results are applied to small local areas. (d) Soil associations, soil types, and "land use capability classes" are not adequate criteria for applying results. Variation within these groups defies unit application. Application to homogeneous land class areas might be possible if detailed land class maps were available. (e) There is no basis for assuming that the difficulty usually encountered in applying controlled experiments to economic problems would not be encountered in the conservation problem. (f) How is area performance to be measured? Acreage compliances from existing records are inadequate measures of area compliance. Acres terraced and contour furrowed, number of gully control dams and diversion ditches, acres of cover crops, et cetera, are hardly adequate measures. Combinations within farm organizations are the components of area performance.

Regardless of the related physical and social problems, soil conservation is largely an economic problem in a democratic state. The individual is concerned with money inputs and money outputs. The sum of these individual reactions is the producers' response to the problem. There are, of course, many social considerations outside the total pecuniary interests of individuals, but Mr. Weitzell was not concerned with this phase in the article in question. There remain then, the physical and the economic considerations. To measure the physical benefits of soil and water conservation by experiment and apply these results to broad areas invites error. The results are apt to be so general as to be inapplicable except in the loosest sense. Variables that defy measurement are apt to defy application.

Specifically, Weitzell raises the following objections to the methods previously employed:⁴

Historical Method:

1. Uncontrolled variables distort income or yield comparisons.
2. Changes in management, production intensity, size of farm, and type of farming may cover up the effects of conservation.

⁴ E. C. Weitzell, *op. cit.*, pp. 479, 481, and 487.

3. Comparisons between "cooperators" and "non-cooperators" are unreal and invalid.

Budget Method:

1. Sufficient budgeting information is not available.
2. The element of personal judgment causes biased results.
3. There is a tendency to exaggerate the results of conservation.
4. There is a tendency to follow ideals or standards.
5. The process is laborious.
6. The method cannot measure minor economic effects.

Merit Point Method:

1. Conservation benefits are too small to be measured in terms of farm income.
2. The sampling process is extremely difficult.
3. There is no necessary correlation between the amount of conservation and farm income.
4. The method cannot be used for measuring conservation benefit for areas, regions, or the nation, or for measuring the effect of individual practices.

It is agreed that none of these methods provides a formula for measuring conservation benefits for areas or regions. The experimental method, however, offers but little relief from objections applicable to the other methods. One objection common to all methods is that there is no provision for measuring the effect of conservation on soil resources, either in physical quantities or economic values. It is usually assumed that the effect of conservation will be noted in increased or maintained productivity. This is a valid assumption, but at any particular time, in a dynamic state, it may be more practical to measure the unused portion of the "variable flow" in terms of differences in capital value. In the last analysis, the effect of conservation on land value must be measured. The "variable flow" cannot be measured otherwise by the economic analyst. There is no concrete evidence that there are any appreciable short-term benefits from the application of conservation inputs. As pointed out by Weitzell, there may be an inverse relation between conservation and current income.⁵ This is true for *current* conservation and current income, but this relationship cannot exist through time when *total* conservation is compared to current income. Reliance on physical productivity as a reflection of these effects is inadequate. The reflection through changes in

⁵ E. C. Weitzell, *op. cit.* p. 486.

economic productivity are necessary, but the assignment of economic values to physical input quantities applied to experimental plots is arbitrary, to say the least.

The historical method may be discarded at once as an inadequate tool for evaluating the economic benefits accruing to particular areas. Such broad and meaningless groupings as "cooperators" and "non-cooperators" are useless unless combined with some measure of the degree of conservation applied. The historical method combined with conservation merit scores may have some value, but its greatest value is in demonstrating the possibilities of a practice or group of practices in specified instances.

The budget method also has its chief value in demonstrating the possibilities of conservation under given conditions. This method is used too often to demonstrate the results desired by the investigator. It is necessary to point out again, however, that the experimental method is subject to most of the same objections.

Weitzell outlines the experimental method as follows:⁶

1. Define the practices and combinations of practices that may be considered as constituting conservation.
2. Establish test plot and field evaluations.
3. Record all inputs and outputs.
4. Estimate the value of conservation by an extension of the results to areas, regions, and the nation.

The relative merits of the experimental and the merit points methods deserve much consideration. What are the merits of the two methods as tools for evaluating conservation benefits?

Weitzell contends that conservation benefits are too small to be measured in terms of farm income. It is granted that the experimental method permits the measurement of rather small benefits, particularly if the experiments are performed on farms under actual farming conditions. The application of values to test plot inputs is a doubtful process. But even if the benefits of conservation practices can be isolated successfully, the extension of results to measure the benefits of conservation to broad areas is of limited value. Theory, whether it results from experimentation or deduction, is valuable when applied under given assumptions. The greater the variation from the theoretical assumptions, the greater is the difficulty in application. A universe that contains so many variables that it defies analysis is apt to defy the application of results obtained by

⁶ E. C. Weitzell, *op. cit.*, p. 489.

controlling these same variables. Because of this, the areas to which experimental results may be applied is apt to be so small that the method will be no more expeditious than the merit point method. A glance at a land class or a soils map will impress one with this fact. When the economic variables are combined with the physical variables, the application becomes even more difficult.

The objection that the sampling process is difficult may be directed toward all statistical analyses. Statistical investigators of economic problems are always faced with the necessity of statistical controls. The experimental method controls the "unrelated" factors in that particular experiment. When the results are used for purposes other than recommendation or administration, the variables must be handled in much the same manner as would be necessary in analyzing the universe.

The merit point method does not predicate any necessary correlation between the amount of conservation and farm income. The method attempts to measure the contribution of conservation to the farming system. This contribution may be either positive or negative at any given time depending upon the effect of shifts in land use, intensity of production, or farm organization. The merit point method proposes to measure conservation in relation to the farming system and farm organization, not in the abstractness of conservation *per se* and its unreal position as a divorce from the farm. If the merit point method were to demonstrate an inverse relation of current farm income to the total conservation applied through time, without an offsetting enhancement of the capital value of land, then conservation would be an unrewarded cost, not a benefit.

It is true that the merit point system cannot be used for measuring the conservation benefits accruing to a broad area unless a summation is made of the homogeneous units within that area and unless a measure of changing land assets is included. This is indeed a laborious process, but so is the collection of experimental data and its extension to field conditions. The merit, in either case, seems to lie in accuracy, not in the time and effort involved.

The Division of Agricultural Economics, State College of Washington, in cooperation with the Soil Conservation Service, has recently completed a study of conservation benefits in the Palouse wheat-pea region of Washington and Idaho by the "merit point system." Attempts were made to control each of the variables

listed by Weitzell.⁷ Although it is realized that complete control was not accomplished, it is felt that sufficient homogeneity was induced to permit a fairly accurate measurement of the conservation program as a whole. Perhaps the chief value of the study lies in channeling further studies. The primary purpose was to evaluate the effect of the recommended conservation program upon present income. Fairly accurate records of the amount of conservation applied were obtained from the farmer and from PMA and SCS records. Incomes on farms with varying degrees of applied conservation were noted. A six-year period, with incomes during the fifth and sixth years, was used. In this study there was no correlation between the amount of conservation and farm income.

The experience with this initial study is encouraging. Although there are many imperfections, it is felt that the method will be quite useful in measuring the effectiveness of recommended conservation programs. The use of the merit point method over a period of time may be an effective measure of the value of conservation programs as they are recommended. There is need for a method by which the economist can evaluate the recommendations of conservation planning groups.

A logical sequence of the use of the various tools seems to be as follows:

1. The historical method may be used for demonstrational purposes in areas with considerable physical and economic homogeneity.
2. The experimental method should be expanded to supply budgeting information and to indicate the probable economic benefits of particular practices and combinations of practices under certain conditions.
3. The budget method in conjunction with the experimental method should be used principally for planning and administrative purposes.
4. The merit point system with foundation in experimental results is the sounder basis for evaluating the effectiveness of recommended programs in particular areas.

No single method or combination of methods will give rapid and accurate evaluations of conservation benefits for broad areas. Intensification of effort and the passing of time are necessary for proper evaluation.

MAURICE C. TAYLOR

State College of Washington

⁷ E. C. Weitzell, *op. cit.*, p. 484.

A REJOINDER

THE foregoing commentary concerning my article entitled, "Evaluating Soil Conservation,"¹ by Maurice C. Taylor, is a welcome response. This brief rebuttal may help to clarify the issues, as I see them.

First of all, soil and water conservation must be accurately defined. Otherwise how can the analyst know what he is attempting to evaluate? Certainly there are interrelationships, but there are certain measures and practices that are known as "soil conservation." It is the effects of these specific measures and practices that should be the subject of evaluation. There seems to be no other logical starting place.

Mr. Taylor's challenge of my statement that soil conservation must be defined before it can be a usable subject of analysis is slightly misleading. Emphasis on the phrase "intended purpose" is a misinterpretation of my original statement. Apparently he has not noted that my approach would be to determine the extent to which any particular measure would influence the "conservation attributes," including reductions in soil losses, nutrient leaching and water losses.² I suggested that any measure or practice that did not positively influence these attributes could not be classified as soil conservation. My tentative classification was intended only to outline some of the measures and practices that might be evaluated to determine their effects, according to the probability of a positive contribution. My plea is for specificity with regard to what constitutes conservation. Otherwise attempts to evaluate a mixture of conservation-management unknowns are futile.

Mr. Taylor's contention that the "experimental method" of evaluation is too explicit leads one to inquire as to what his principles of scientific analysis may be. Other apparent inconsistencies make his criticism difficult to follow. For example, he indicates that

¹ This JOURNAL, May 1947, pp. 475-494.

² The initial discussion (*ibid.*, p. 477), as well as Mr. Taylor's criticism, failed to observe that *increases* in organic content and other factors contributing to productivity may be attributes of soil conservation. Strictly speaking, such increases might be considered as "rehabilitation" rather than conservation. However, inasmuch as they may occur as the result of other measures that are designed primarily to retard erosion or to prevent leaching and runoff, they cannot be divorced from conservation. In any event, the beneficial effects of conservation should be considered as those increases in productivity over that which would have prevailed without conservation. Thus, the long-time level might be higher or lower than the current level (*ibid.*, p. 486).

the enhancement of land value may be an expected effect of conservation. Yet he would eliminate the consideration of whether specific effects are immediate or long-term as having no significance. Certainly he would not capitalize short-term or current benefits (from ammonium fertilizer, for example) into land values. He writes "Whether these inputs are intended for immediate effect or a flow of benefits is unimportant except as the time element and the rate of return on investment are important." Isn't this equivalent to saying that time is not important except as "time is important"?

In addition to drawing some rather questionable conclusions as to the relative merits of "case studies," Mr. Taylor apparently fails to recognize that area or regional evaluations are one of our greatest needs. The availability of public funds for soil and water conservation should be based on comprehensive benefit-cost determinations. Toward this aim, it is hoped that economists and soil scientists will succeed in working out a reasonable procedure for projecting benefit estimates to resource areas, soil association areas, type of farming areas, or some appropriate geographic areas. My critic dismisses this possibility with the comment that to do this "is certainly to invite error." Any economic valuation must deal with variables and errors. The aim should be to develop and use that procedure which reduces the probable error to a minimum.

Farm and conservation planning present equally urgent needs for benefit-cost evaluations. If we recognize that conservation is a phase of farm production economics, it is essential that we design and apply conservation on the basis of the same principles that guide other investments. This means that the desirable intensity of application, in terms of relative costs and benefits, is a basic fact to be determined. The development of the most economical designs for guiding the application of specific measures of soil and water conservation can be done only by controlling all other factors, while observing the effects of successive inputs of the selected measure or practice. Experimental testing of the several segments of any proposed conservation program seems to be the only available technique for doing this job. Certainly it cannot be done by "farm surveys" of any type that has been conceived to date. It is true that the very small test plots used for many agronomic and soil experiments may not be adequate. In order to represent actual farming conditions more nearly, it may be necessary to use larger plots, contiguous fields, or entire farms. The principal need is for adequate

checks and controls so that the researcher can accurately observe the effects of specific inputs.

Mr. Taylor's defense of the "merit point" method of evaluation seems to be unconvincing. Perhaps the Washington study he mentions lends greater strength to his argument. However, the statement that "In this study there was no correlation between the amount of conservation and farm income" leads one to anticipate the results with several questions in mind.

After the "experimental method" has been tossed all over the campus, it is quickly reinstated through the back door, as the basis for three of Mr. Taylor's suggested evaluation procedures. It is not clear how he would use experimental data as a foundation for the merit-point method; but in general the dependence on plot, field, or whole farm experiments, planned to represent specific groups of soil resources, is a hopeful possibility.

E. C. WEITZELL

Bureau of Agricultural Economics

ECONOMIC FACTORS IN THE GROWTH OF THE OILSEED INDUSTRY IN THE UNITED STATES*

THIS study inquires into the nature and causes of the growth of the oilseed industry in the United States and gives some attention to the consequences of and prospects for the industry. The analysis is divided into a study of (1) factors affecting the supplies of, utilization of, and demand for the commodities considered and (2) the nature of, reasons for, and significance of the organizational pattern of the processing industry. The major sources of information came from publications of federal and state agencies, trade and financial publications, and general economic literature.

Supply Factors

Characteristically all production trends exhibit a rapid growth in the early years, and a gradual retardation of the growth rate. Among the oilseeds, maturation is now shown by cottonseed, flaxseed and corn germs; vigorous growth, by soybeans. Causes for such behavior may be traced to the impact of dynamic factors (population, technology, tastes, foreign trade, and social policy) on the supplies of and markets for the commodities in question.

* An abstract of a doctoral thesis presented at the University of Illinois.

1. Cottonseed and related products—the supply of an oilseed produced as the minor product of a joint output depends largely on the output of the major product. The cotton crop was about six times more valuable than the cottonseed crop in the past 35 years,

In the past century and one-half the expansion of cotton production was due to availability of new land, abundant labor supplies, improved transportation, improved techniques of producing cotton and the expansion of foreign and domestic markets for cotton. The gradual retardation of growth of cotton production was based on the increased foreign production of cotton, production of substitute fibers, slackening of the domestic population growth rate, the limited reserve of new lands, and restrictive social policy. However, ameliorating factors have tended to impede the decline (e.g. improvements in yields, increased domestic per capita consumption of cotton). The peak of U. S. cotton production was reached in the 1920's and there appears to be no bright prospect for reversing the decadent tendency in the future.

The cotton seed crushing industry began in the 1850's but experienced its important growth between 1870 and 1910. Factors in its growth (other than the availability of cottonseed) were the development of processing techniques, transportation and markets for cottonseed products. After 1910, the percentage of cottonseed crop (not used for seed) crushed, averaged 88 per cent and varied from year to year directly with real prices received for cottonseed and inversely with real cash incomes from cotton. In the main, the supply response was inelastic and little significance can be attached to prices or incomes in explaining the annual variations in supplies of cottonseed. The development of appropriate solvent extractor systems could increase the annual cottonseed oil supply as much as 15 percent. Future increases in cottonseed oil production are more likely to come through this avenue than through others, but the change probably will be slow.

Imports of cottonseed or cottonseed products have been minor factors in the total domestic supplies. Cottonseed is not an international commodity in the usual sense and production of cottonseed products has been a backward industry in most cotton producing countries.

2. Corn germs—Corn oil is produced mainly as a minor product of the corn refining industry as well as in the corn alcohol and corn

milling industries. The corn refining industry grew into maturity in the past half century and further expansion of the output of corn oil is mainly contingent upon its rejuvenation through the discovery of a larger market for starch or glucose products.

3. Soybeans and related products—Soybeans are relatively new as a grain crop, important acreage expansion occurring in the 1930's. The highest per acre yields are obtained in the Corn Belt where production is most concentrated. Analysis of crop acreage changes since 1925 in Illinois, Iowa, Indiana, and Ohio by crop reporting districts (80 percent of U. S. soybean production) indicates that soybeans tended to displace all major uses for tillable land rather than any selected crop(s). However, in the recent 1940-44 period corn and soybeans were most directly substitutable. The soybean-corn acreage ratios varied inversely, and significantly with the corn-soybean yield ratios. Oats and wheat were not significantly associated with soybeans in this respect. In earlier periods, small grains and soybeans may have competed more closely.

An analysis of both gross and net returns per acre from soybeans and other major crops from 1930 to 1944 indicates that soybeans were more profitable than small grains, but less profitable than corn, except perhaps in the 1930-34 period. However, complementary and supplementary relationships between different crops tend to obscure the relative advantage of growing one crop in place of another when comparisons are made without regard to these interrelationships. The soybean crop has several such interrelationships with other crops.

The important factors underlying the growth of soybean production were: A relatively greater improvement in per acre yields of soybeans than in yields of alternative crops, prior to 1940-44; the drouth and disease resistance of soybeans; a relatively greater reduction in costs of producing soybeans than of corn, since 1932; and the governmental production adjustment programs, particularly those of 1934, 1935, 1939, 1940, and 1941. Probably the acreage of soybeans would have expanded had there been no drouth or governmental programs, but the latter factors were important. The parity payment feature of the 1939-41 programs was a more important factor in reducing corn acreage than was the financial attractiveness of soybeans.

Although the future of soybean production is difficult to predict, soybeans have established themselves as an important commercial

crop. Quite apart from the future level of soybean production, the areas are likely to shift in importance. Production may increase in the flat clay-pan areas of Illinois, Indiana, and Missouri if general soil improvement practices are followed. Much idle land there may be brought into cultivation. On the other hand, improved corn yields in the commercial each corn area (due to improvements in soil management) will reduce the acreage in soybeans.

The soybean processing industry developed more rapidly than the cottonseed processing industry, and the more efficient solvent process is replacing mechanical methods. About 15 percent more soybean oil could be secured from the annual crush if the solvent process were universally adopted.

4. Flaxseed and other oilseeds—The production of flaxseed in the United States has begun to change only in recent years from a pioneer sod-land crop to a well-established crop in settled areas. Accompanying this trend, the production areas have shifted back eastward. Only since 1939 have per acre yields become relatively stable, reflecting, in part, adoption of wilt-resistant varieties, better cultural practices, and selection of more suitable areas. On this basis it may be assumed that the production of flaxseed in the United States will increase in future years. However, only limited regions can grow the crop successfully, and flaxseed will probably remain in deficit supply. Imports will probably continue to balance requirements for linseed oil for drying purposes.

The copra and palm tree industries of the East Indies developed rapidly since World War I. The United States has imported large quantities of these oil products for use in soap and various foods until the 1930's after which the imposition of certain taxes somewhat limited imports. Both industries are relatively young and new areas and improved techniques of production will probably contribute toward greatly increased supplies in the future, even at low prices. The long production period and use of native labor permit high output at prices that just cover the relatively flexible variable costs. Hence, the oils will compete strongly with domestically produced fats and oils. However, the need for improved transportation, etc. will impede the rapid expansion of exports.

The babassu industry in Brazil is similar to, but younger than, the copra and palm industries in the East Indies. The potential production apparently is large; however, technical difficulties may hold down the industry for a long time. As yet the United States

has not placed import duties or excise taxes on either the imported babassu oilseed or oil.

The peanut and olive in the United States are used as food rather than crushed for oil. Although both are protected with relatively high duties, the prices of peanut and olive oil are not attractive enough to induce a large domestic supply.

Castor beans, tung nuts, and sunflowers have been minor oilseeds in the United States. The castor bean has usually been imported more cheaply than it can be produced domestically, although certain technological advances in the future and/or tariff changes could alter this somewhat. Domestic production of tung nuts is limited by exacting requirements of the tung tree and the high labor requirements in harvesting. Presumably, production could increase when and if the crop shifts from large scale commercial production to small family farms in the narrow southern belt in which the crop is adapted. The sunflower is used for forage and feed in the few states where it is grown extensively. Difficulties with yields and harvesting would have to be overcome to make the crop profitable for oil purposes.

Such oilseeds as are obtained from the sour cherry canning industry, the dried fruit industries, and the fruit juice industries are interesting rather than significant in the total supply of oilseeds. The particular problem in these industries is to secure sufficient volume to make crushing profitable.

The tropical tree crops have a competitive advantage in production over annually produced oilseed crops, except those which are minor products of joint outputs.

Utilization and Demand Factors

1. Vegetable oils—The U. S. per capita domestic disappearance of all fats and oils increased 17 percent from 1920-24 to 1935-39. In 1940, about 40 percent of the fats consumed were of vegetable origin. Food soap, and drying oil products were the principal uses. Invisible fats (in milk, eggs, meat, etc.) make up nearly one-half of the total food fats consumed in normal periods. In 1917-18 and 1944-45, the consumption of invisible fats increased, replacing the decreased consumption of visible fats. Thus there is competition between the two forms of fat for a place in the diet, but no trend is discernible in their relative importance.

Among the visible fats, the per capita consumption of vegetable oil products increased most. Consumption of pork fat cuts and

butter did not increase. The quantity and quality of fats consumed are directly related to family income. Low income groups consume less fat than medium and high income groups. Higher income groups may eat no more fats than medium income groups, but they consume more expensive forms of fats (e.g. butter, shortening, salad oils, salad dressings, etc.). The lower income families consume more lard and margarine.

Shortening, which developed historically as a substitute for lard, has become a distinctive product in its own right, and ways are being sought to give shortening-like properties to lard. However, production of shortening is still adjusted to the quantity of lard available for sale in the domestic market. Therefore, total lard production and exports are extremely important to the consumption of shortening. Although there is no evidence that the demand for shortening agents (lard plus shortening) increased in the 1912-41 period, there is evidence that the demand for shortening by itself increased. Accompanying an increased demand for shortening there was a marked decrease in substitution of the two products (as indicated by the decreasing elasticities of substitution). Product improvement and sales efforts were causal factors. Soybean oil has replaced cottonseed oil as the major ingredient in shortening despite its tendency to flavor reversion. This reflects the relatively inadequate supplies of cottonseed oil, on the one hand, and possible improvements in soybean oil as an ingredient, on the other hand.

Margarine competes with and adjusts itself to changes in butter consumption. The future of margarine depends on this and on technical improvements in the margarine product, educational campaigns, and the character of discriminatory legislation. There is no evidence that the demand for margarine has increased over the 1910-41 period; prices declined sharply and consumption increased more gradually. Since 1934, cottonseed oil and soybean oil have become the important ingredients replacing coconut oil. The shift from coconut oil reflects the effect of restrictive taxes on use of imported oils and of technical improvements in the use of domestic oils in margarine.

Salad dressings doubled in output from 1931 to 1941. Consumption appears to be related to increasing consumption of green and yellow vegetables. The very high grade edible oils (e.g. cottonseed, corn, sesame, etc.) were usually used.

The per capita production of soap has been increasing. There is some evidence of an increased demand for soap, 1925-39, reflecting

increased incomes, a trend toward cleanliness, use of home washing machines, and sales efforts. The imported lauric acid oils have a technical advantage as ingredients. The upward trend in soap consumption will probably continue.

The consumption of drying oils is intimately related to changes in industrial production and construction. There is evidence that the secular demand for drying oils remained constant, 1912-41. Although tung, perilla, and linseed oils are the naturally superior drying oils, recent technical advances will place castor oil and soybean oil in a somewhat stronger competitive position.

2. Oilmeals—Nearly all the vegetable oilmeals are used in the domestic feeding of livestock. Minor amounts were used for food, industrial products or processes and for exports. The oilmeals are valued by feeders principally for their high-protein content. Competing closely with the oilmeals are the animal proteins, millfeeds, and brewers' and distillers' dried grains. However, the bulk of the protein fed to livestock comes from pasture, hay, silage, stover, and grains. Small changes in quality and quantity of the roughages and grains can cause profound changes in the amount of high-protein concentrates required.

There was a marked upward trend in the quantity of commercial high-protein feeds fed per unit of livestock, 1926-27 to 1944-45; but more proteins are still needed to balance livestock rations. Increased nutritional knowledge, increased livestock numbers, and educational efforts of governmental agencies and the feed industry have been important factors underlying the trend.

The major change in the demand for feeds, apparently, has been the increased demand for soybean oilmeal. This was a factor contributing to the rise of the soybean industry. The prospect for increasing the demand for the oilmeals depends upon the total demand for proteins and upon the supply from alternative sources.

The increase in soybean meal since 1934 has been spectacular. Most of the increase in high-protein feeds has been in soybean meal. This has helped to fill a gap in animal feeding requirements and has been an important factor in the expansion of animal feed-stuffs that occurred during the war. If demands for the oilseed meals increase, it appears that soybean meal production is likely to increase more than the other oilseed meals to meet these demands.

Organization of the Processing Industry

1. *Plants.* The oilseed processing industry may be divided into

fourteen census industries on the basis of the major products produced. These industries have the common characteristic of utilizing large quantities of oilseeds, vegetable oils or oilmeals in their processes. They represent the several segments of the oilseed industry adequately for present purposes even though they did not produce the entire output of their major products, nor confine themselves to the manufacture of the main product.

Like most manufacturing industries, size of plants varied widely in the several industries studied. These variations are due to (1) the different grades of resources available to the individual plant (2) the strategic decisions in fitting the plant into an integrated firm's production scheme and (3) lagging adjustments to changing conditions. That there was more concentration within some industries than others is due to the specific economic conditions in each industry.

Processing margins tended to decrease with increased plant size except in certain industries where monopolistic elements may be quite marked.

Comparison between principal plants in different segments of the oilseed industry showed them to vary in size, degree of mechanization, annual wages paid and processing margins. These variations have rational explanations. For example, the processing margins of the manufacture of industrial oil products (soap, paint, linoleum, printing ink, artificial leather and oilcloth) were roughly twice as large as the margins of the crushers, manufacturers of edible oil products (except margarine), or mixed feeds. The economic explanation is mainly in terms of production costs, partly in terms of monopolistic elements.

2. *Firms.* Most of the important plants in the industry belong to multiplant firms. A small number of firms in each segment of the industry, with few exceptions, produced over one-half of the output of their segment. This concentration is characteristic of all manufacturing industries in the United States. However, in at least seven of the fourteen segments the concentration has lessened during recent decades. The relative concentration among these industries may be explained by a set of economic forces operating through materials, processes, products, or markets.

Vertical integration was the least important type of integration in the industry. Only 10 percent of the crushers' products were reported as inter-plant transfers in 1939, even though 30 percent of the plants reported such transfers. The complex interrelationships

among processes make it difficult to integrate precisely. Horizontal integration was prevalent throughout the industry, particularly in the industries having relatively small, widely scattered plants. Partial integration (based on similarities in materials, processes, or markets) was a common characteristic of multiple product businesses, e.g. soap-shortening, flaxseed-soybeans, paint-printing ink, etc. The type and degree of integration present in each of the oil-seed industries have an economic explanation based on the logical avenue for expansion available to the individual firm.

There was no evidence as to whether large, medium, or small businesses in the industry were most efficient. In individual cases, efficiency would appear to be as much a function of management as of size, and comparisons between firms within an industry are impaired by the differences in the product make-up of their businesses.

The prerequisite for monopolistic behavior existed in some segments of the industry—a small number of buyers or sellers (resulting from industrial concentration, product differentiation, or collusion). However, the degree to which a raw material has alternative uses, or a manufactured product meets good substitutes, limits the area in which monopolistic control can be made effective. For example, the highly concentrated corn refining industry can exert relatively little effect over the price of the corn it purchases (since most corn is used elsewhere) nor can it set prices of starches, sugars, syrups, or oil very freely in view of the many substitutes available for these products. On the other hand, conditions in the linseed crushing industry permit more control over the prices paid for flaxseed and the prices obtained for linseed oil. What degree of control is actually exercised in the latter industry is undetermined. In these and in other industries, the elasticities of the supply and demand curves are more significant facts in analyzing monopolistic possibilities than is the condition of small numbers. The competitive elements in the oilseed industry appear, by and large, to be more important than the monopolistic elements and any detailed appraisal of monopolistic behavior within the industry should also inquire into cost conditions and the permanence of monopolistic situations before judgments are rendered.

ALLEN B. PAUL

University of Illinois

REVIEWS

Towards World Prosperity, Mordecai Ezekiel and Associates, New York: Harper and Brothers, 1947. Pp. XIV, 446. \$5.50.

The central thesis of this book is that, given political cooperation and security between nations, world prosperity is technically possible through balanced industrial and agricultural development and expansion. However, this will require planning of a very high order for "real prosperity for the world can come only if the rate of development of processing, manufacturing, and other nonfarm industries can be speeded up to match the technical progress already made in agriculture and the still greater technical progress which lies ahead as the agricultural methods of modern science spread over the world." (P. XIV.)

This book contains 22 chapters of which the first two and the last were written by Mordecai Ezekiel, and the others by 19 specialists on different countries or areas of the world. In the introductory chapters, Ezekiel states that the war had much less effect on agriculture than on industry. Some importing countries were forced to expand domestic supplies or seek new sources of imports, while some exporting countries found their usual markets cut off or restricted, ". . . yet the general structure of food production and consumption was not revolutionized" (p. 1). On the other hand, profound change took place in industry where emphasis was placed on implements of war and on equipment for the military forces. In large areas, physical resources were depleted, human resources destroyed or badly warped, and internal and international property rights scrambled.

Ezekiel believes that the maintenance of full employment in the highly industrialized countries and the development of nonfarm industries in the less advanced countries are major postwar problems. He believes that any given country can make progress on the industrial front if it has the will to do so. Perhaps the best example of all history is that of Russia which made the shift "from a backward nation to modern industrial nation within a single generation" (p. 23). While such a shift is possible with little outside help, in a country rich in resources, it requires regimentation and sacrifice on the part of the people that few would wish to emulate. Hence, Ezekiel places emphasis on the need for the United States and other

leading nations to supply technical information and financial aid to the technically less advanced countries.

The greater part of the book is concerned with possibilities and suggestions for economic development in selected countries and regions of the world. On the whole, the authors have done a good job of describing the human and natural resources and of analyzing the problems involved in the economic development of the various countries and regions included in the book. The introduction and expansion of nonfarm industries is essential to the lifting of living standards in the technically backward countries, and these countries contain the great majority of the people of the world. Emphasis throughout the book is placed on the need for technical advice and financial aid from the more advanced industrial nations, chiefly the United States. The summation of the financial aid suggested for the individual countries gives a total of enormous proportions.

This reviewer is of the opinion that the authors of *Towards World Prosperity* have painted a somewhat too rosy picture of the prospects for success of the various world-wide organizations which were established during and since the recent war. He also believes that the willingness of the people of the United States to loan enormous sums to all who need or think they need outside aid has been dampened considerably by past experience with many countries that seem to feel that their external debts should be paid only as a last resort. In short, the future economic development of the world is likely to depend to a much greater extent upon self-help than is envisioned by the editor of *Towards World Prosperity*.

However, the time has come when the people of the United States must acquaint themselves with the human and natural resources of the world and with the many complex problems involved in bringing about more rapid and more general economic development. *Toward World Prosperity* will be helpful to this end.

AUSTIN A. DOWELL

University of Minnesota

Causes of Annual Fluctuations in the Production of Livestock and Livestock Products, James H. Lorie, Chicago: University of Chicago Press, 1947. Pp. 105 \$1.50.

Lories starts out with a clear outline of the field he is going to cover.

"It is the purpose of this study to ascertain the most important immediate and ultimate determinants of annual fluctuations in the production of livestock and livestock products in the United States and to measure statistically the relationship between these determinants and livestock production for the period from 1910 through 1944."

"The last chapter develops a form of production function for livestock products which may be used with appropriate data by animal husbandrymen to measure the marginal productivity of feedstuffs and of animal units and by meatpackers and other processors to estimate the volume of production of particular livestock products."

Horses and mules are not included in the index of production of livestock, which refers to increases in the weight of live animals on farms. The index of the production of livestock products refers to eggs, milk, and milk derivatives, and in addition, to beef, pork, lard, lamb, mutton, and other products of livestock slaughter.

Pasture, and wheat for feed, are omitted from the index of feed supplies, but not of feed consumption. The author concludes that feed consumption in any year closely approximates the production of feed in the preceding production period (although they change in the same direction only a bit more than three-fourths of the time) the effects of changes in carryover being small. On the average a change in feed supplies of one percent causes a similar change in feed consumption the next year of 0.9 percent. Changes in feed supplies are primarily weather-induced. A one percent rise in feed supplies above trend was accompanied on the average by a rise in animal units the following January 1 of 0.6 percent, and a decline in feed supplies, by a decline in animal units of 0.2 percent.

The author demonstrates in Chapter III that livestock production per unit of feed consumed varies inversely with the rate of feeding, confirming the earlier experimental studies of Nelson, Atkinson, and Klein. With a given consumption of feed, therefore, the production of livestock products varies directly with the number of animal units being fed. The author then analyses cyclic movements in the numbers of the different kinds of livestock.

In Chapter IV, the author sets up a logarithmic production function for livestock, based on a multiple correlation study, where X_1 is the volume of livestock production per year, X_2 is the volume

of feed consumption per year, X_3 is the number of animal units fed per year, and X_4 is "time."

When a linear regression line was fitted to the logarithms of the data, the following coefficients resulted:

$$\begin{array}{ll} a_{1.234} = 0.3161 & b_{13.24} = 0.5230 \pm .0478 \\ b_{12.34} = 0.3299 \pm .0296 & b_{14.23} = 0.0021 \pm .0001 \end{array}$$

The ranges of the regression coefficients are equal to two standard errors.

The standard error of estimate, the unexplained variance, the multiple correlations coefficient, and coefficient of determination follow:

$$\begin{array}{ll} \bar{S}_{1.234} = .0167 & \bar{R}_{1.234} = .95402 \\ \bar{S}^2_{1.234} = .00028 & \bar{R}^2_{1.234} = .91083 \end{array}$$

The marginal productivities of feed consumption which are shown in an erratum slip correcting pages 93 and 94 range from 0.27 for a marginal product index of 120 and an animal unit index of 80, to 0.44 when the values of these two indexes are 80 and 120 respectively. Correspondingly, the marginal productivities of animal units range from 0.47 to 0.65.

Chapter IV is entitled "A Production Function for Livestock and Livestock Products." The author explains in correspondence that X_1 is an index of both livestock and livestock-product production.

Lorie debated whether to use data going as far back as 1910. Hindsight, especially with reference to figure 28, prompts me to believe that more accurate results would be obtained by omitting the years 1910-20, although the results then would be even more dominated than they are now by the few extreme years during World War II.

GEOFFREY S. SHEPHERD

Iowa State College

The Farmer in the Second World War, Walter W. Wilcox. Ames, Iowa: Iowa State College Press, 1947. pp. 410, \$4.00.

It is interesting to speculate whether and how American agriculture prior to and during the Second World War might have been different had some predecessor of Professor Wilcox written such a book as this in 1920. Of course, no one during World War I really

believed that agriculture's contribution to victory was small, yet it is unlikely that there were many in those days who would have gone so far as to say that "food will win the war and write the peace." In any event, it is high time that *the farmer* be given greater recognition for his contribution to world economics not only "in the Second World War" but in all wars and more especially in times of peace.

In bringing the wartime agricultural problems and accomplishments into sharp focus in this book, Professor Wilcox has done his country and its farmers a distinct service. He has not, however, been content with mere description or even with the inclusion of a wealth of political and economic background material but has interspersed the whole with his own illuminating and objective interpretations. The result is an historical study which is easily read, thoroughly documented, and highly useful.

Introductory chapters deal briefly with the significance of the war to agriculture, agriculture at the outbreak of the war, public institutions serving agriculture and problems incident to the change from a peace time to a war time agricultural economy. The next four chapters take up, in succession, wartime agricultural production, marketing, use of man power, and use of land. Data from official records are presented to give emphasis to agriculture's phenomenal production record; the increased use of farm machinery, larger output per worker, advances in ideas regarding nutrition, reductions in trade barriers, significant shifts in land use, and the growing importance of farm forestry.

It is in the next seven chapters (9 through 15) that Professor Wilcox has opportunity to draw upon his background and experience as he discusses the controversial issues centering around the formulation and administration of price policies for agriculture. He reviews the controversy which raged between the administration which wanted separate controls on prices and wages and Congress which, on the one hand, wanted to include wage controls in price control legislation and, on the other, to avoid price ceilings on agricultural products except at parity levels or above. The result was an unfortunate delay and a continued increase in the price level. Here also is revealed something of the "behind the scenes" maneuvering which went into price control legislation and which eventually paved the way for incentive payments or agricultural

subsidies in lieu of higher market prices.

The remaining chapters (16-23) are concerned with such topics as technological development, international trade, industrial expansion, the changing role of the Department of Agriculture, and the increasing influence of farm organizations.

In the opinion of the author there was in the United States an almost total absence of any agricultural planning for war even as late as December 1940. Fortunately, the agencies serving agriculture at the outbreak of the war did not, for the most part, find it necessary to undergo extensive reorganization as a result of the war. One of the things which caused agriculture so much trouble during the war was the mechanical use of the parity formula made mandatory by Public Law 74 (May 1941). This was followed by the so-called Stegall amendment which promises to provide its share of trouble during the first two full years of peace.

Professor Wilcox is critical of the policy of continuing into the war years peacetime activities "only indirectly contributing to the war effort." In this connection he cites both the AAA and the SCS. "In some ways," he adds, "the Farm Security Administration was more 'war conscious' than any of the other agencies." However, the FSA is taken to task for increasing its activity in the North Central States and decreasing its activity in the South during the war period. "Just the opposite should have happened," he says. "Congressional action" is blamed for failure of cotton and wheat farmers to make larger shifts "in line with needed peacetime adjustments."

Although some progress in marketing is noted, Professor Wilcox feels that of more significance are the "additional economies which might have been, but were not achieved."

In appraising price policies during the war the author states that the "greatest mistake . . . was the imposition of price ceilings . . . without adequate provision for keeping the supplies flowing through the established channels." Professor Wilcox will probably agree that a close second might well have been the *maintenance* of price floors on commodities not essentially needed in the war effort. However, this reviewer (who is reasonably familiar with the South and who was somewhat involved in the determination of wartime production goals) finds it hard to believe that response to this latter policy resulted in a production record which would justify his charge that "the outstanding example of misused human and

other resources in agriculture . . . occurred in the Cotton Belt." Either the Professor is unfamiliar with the record or he greatly overestimates the resources.

G. H. AULL

Clemson College

Two Blades of Grass, T. Swann Harding, Norman, Oklahoma: University of Oklahoma Press, 1947. Pp. xv, 332. \$3.50.

This book, a history of scientific development in the U. S. Department of Agriculture, owes its title to a statement of the first U. S. Commissioner of Agriculture, Isaac Newton, "a good Pennsylvania dairy farmer," who wrote in his first Annual Report, dated January 1, 1863:

"It should be the aim of every young farmer to do not only as well as his father, but to do his best; 'to make two blades of grass grow where but one grew before.' " Scientific research in agriculture has been the primary factor in making possible this achievement. The author, T. Swann Harding, evidently had no desire to indulge in higher praise, or perhaps in odious comparison, else he could have quoted an earlier source of the now familiar allusion. More than 200 years ago Jonathan Swift in "Gulliver's Travels" put into the mouth of the King of Brobdingnag these words:

"Whoever could make two ears of corn or two blades of grass grow upon a spot of ground where only one grew before, would deserve better of mankind, and do more essential service to his country than the whole race of politicians put together."

Chapters 1 and 2 trace the early beginnings of agricultural science in the federal government thru the period from 1839 (with the first agricultural appropriation of \$1000 to the Patent Office in the Department of State) to 1862 when Lincoln signed the act creating the U. S. Department of Agriculture. The depression beginning in 1837 was a significant fact perhaps which, among other things, prompted Henry Leavitt Ellsworth then Commissioner of Patents "to do something for farmers."

The last Commissioner and first Secretary of Agriculture, Norman J. Colman of Missouri was largely instrumental in effecting passage of the Hatch Act in 1887. In 1889, Colman was the first Department head to hold a seat in the Cabinet. Soon thereafter with the depression of the 90's the social sciences began to find a

place in the Department. As the title implies this book does not cover the contributions of the social sciences, although the author does recognize their importance in several places. He concludes his chapter on early research with "It should be said here that the Department's policy of making two blades of grass grow where one grew before, while eminently successful, did not suffice to solve farmers' problems . . . That is why the social sciences began to infiltrate the Department, getting their start in its scientific agencies." It was not until the administration of David F. Houston, 1913-1920, however, that the Department was reorganized to "cope with the rising economic and social problems it had too long ignored or given scant attention."

Part II, Achievements, includes Chapters 5 to 14, and recites the, scientific accomplishments in a wide variety of fields: chemistry entomology, plant breeding and plant pathology, forestry, animal production, soils, nutrition, dairying, and agricultural engineering. Chapter 10 deals briefly with the development and scientific contributions of the state agricultural experiment stations. Appearing throughout the book are names of many persons prominent in the development of agricultural science, such as, Wiley, Salmon, Atwater, Fairchild, and Swingle.

The reader is impressed also with the recital of names of men, little known, but of sound scientific training who "have continuously served us unaware." Leonard L. Harter, in cooperation with state agricultural experiment stations, developed control measures for sweet potato diseases which resulted in a saving of five million dollars annually. Like many other scientists, he built up a huge annuity—which, however, accrued to the general public."

Part III recites achievements of scientific agencies which were developed, and which until in recent years were administered by the Department of Agriculture, with chapters on the Weather Bureau, Public Roads Administration, Fish and Wildlife Service, and Food and Drug Administration.

Part IV, Values, contains the single chapter, "Value of Pure Research." The works of Liese Meitner, Enrico Fermi, Alexander Fleming, Gregor Mendel and others are impressive examples of the priceless value of pure, as opposed to applied, research. Although some of the assumptions usually underlying such calculations may be questioned, impressive examples of the strictly monetary value of Department research are noted throughout the book. "Returns of

500 to 10,000 percent in the investment in research are not at all uncommon."

Despite the results, the agricultural industry in 1938 spent only .37 per cent of its gross income for research, conducted almost wholly by governmental agencies. In the same year industry spent 1.7 per cent of its gross income on research and many private concerns used 4 to 5 percent for this purpose.

"Two Blades of Grass" is an interesting story of the development of agricultural science in the past century. Social scientists will find it a valuable history of agricultural achievements and a reference book worthy of being kept in a handy place.

F. F. LININGER

The Pennsylvania State College

The American Farmer, His Problems and His Prospects, Lee Fryer, New York: Harper and Brothers, 1947. Pp. X, 168.

This book is about farm people—working farmers, their problems, their resources, the institutional arrangements that often squeeze the life blood out of them, their houses, their health, their income or lack of it, their ugly poverty, their inarticulate hopes and ambitions, and their future. The title of the book might suggest that this is just another treatise dealing with "the farmer" as an abstraction or as a generic entity, without giving recognition to differences that exist as among the bottom, the middle, and the upper farm income groups. Any such conclusion would be erroneous. It is the plight of the three to four million working farmers—the sharecroppers, the tenants, the mobile farm laborers, the small family-size farm operators—these are the farmers about which the author writes with understanding and with compassion.

It may be that the author appraises "the American farmer" from a viewpoint that has been influenced somewhat by his years of experience with the Farm Security Administration. But for the most part the book is factual and objective. There is evidence of a passionately crusading spirit and a burning desire to find a better way of life for the great mass of working farm people than they now know. Unfortunately for these farm people, according to the author, there has been no standard of ethical principle to use for reference, no public conscience based on a clear idea of human needs and decent living, but only the savage interplay of interests and pres-

tures, with the exploiters of rural people organized and the victims going it alone.

Despite the fact that American agriculture has every resource needed to make farm life secure and wholesome, it keeps two-thirds of its people in economic jeopardy and one-third in bitter poverty. The great majority of American farm women live and work under squalid primitive conditions, in houses that are far below the standard enjoyed by other groups. The health status of farm people has deteriorated sharply since the first world war due to inadequate or nonexistent health facilities and services.

Four bedrock problems are found to be back of the unfortunate status of agricultural people. First, the poor distribution of land among farmers: too many farms have too little land. Big farms and small farms are growing in numbers and relative importance, while middle-sized farms are diminishing in importance.

Second, the relationship of farm families to the land they cultivate, which includes farm tenure, debt, and mortgage. It is pointed out that farm people too often buy the right to use farm land with the clothes off their backs. Many of the old and the new problems have their roots deep in the institutional patterns that govern these relationships.

Third, the poor use made of the farmer's labor and capital resources. While rural America is spending one man-hour of labor to produce goods worth only \$1, industrial America produces goods worth \$4 to \$5 with the same amount of manpower, according to the author.

Fourth, the isolation of the individual farmer. Every agency with which the farmer deals is organized, either directly or indirectly. Working farmers must have an organization of their own, for without organization the ordinary farmer has no power to speak in any of the many places where his voice should be heard. The author thinks the present major farm organizations do not represent or speak for the "working farmer."

The author, in dealing with a charter for reconstruction, maintains that rural communities must assume responsibility for the reconstruction of agriculture and the employment of rural people in productive work with incomes up to the American standard. Such a program is to be implemented in part by the passage of an enabling act for the creation of community authorities to promote commun-

ity reconstruction, including the regulation of the ownership and use of farm land in accordance with sound national and local policies.

In the reconstruction plan, a very great deal of emphasis is placed on a closely knit, strong farm organization working effectively through far-flung cooperative units. Some readers may think the author has a naive faith in the ability of low income farm people to organize and initiate the program of reconstruction as outlined. Moreover, it is not quite clear just where or how the generating force is to come into existence that will arouse the community to do the job as outlined for it.

In the proposed program of reconstruction the matter of high commodity prices is conspicuously absent. The observation is made that small farmers and family farmers must realize that high prices are not the key to a secure and prosperous future.

This little book of 168 pages is interesting and challenging throughout. It may not receive the attention it deserves during this period of economic and political reaction and at this time when the basic ills of millions of low income farmers are temporarily obscured by abnormally high war and post-war prices and by a high level of employment; but there is reason to believe that its proposed charter will be carefully appraised and appreciated when all of the old ugly problems of rural poverty and unrest, together with many new ones of the post-war period, rise again to plague the country anew in the years ahead.

Out of the apparent zeal for the welfare of poor and distressed and unorganized farm people, the author may have drawn conclusions and made judgments about institutions and economic groups that some may think are harsh and without full justification. The story as a whole, however, portrays in graphic fashion the plight and the problems of the great mass of agricultural workers. The real American farm problem, which has to do with economic causal forces and with human beings, is brought to sharp focus. The proposed remedial measures are challenging and stimulating, even if certain aspects of the reconstruction charter may be controversial and a bit idealistic. All students of American rural life will want this little book in their collection.

FRANK J. WELCH

Mississippi State College

Jesse Buel, Agricultural Reformer. Selections from His Writings
Edited, with Introduction by Harry J. Carman. New York:
Columbia University Press, 1947. Pp. xxxvi, 609. \$6.75.

Jesse Buel (1778-1839) was one of the most eminent agricultural statesmen of his generation, but like many other Americans who have devoted their energies and vision to the cause of better farming and the improvement of agriculture as a way of life, we have known comparatively little about him because of the lack of a well-rounded account of his life and contributions. Dean Carman's introduction to this volume supplies this need very well.

Buel's career as an agriculturist was relatively brief, but he accomplished much during that time and pointed the way for later generations. Having achieved success as a printer and businessman, Buel turned to the problems of farming and rural life in 1821. By scientific methods he made his 85-acre farm in the sandy barrens west of Albany, New York, a paying enterprise as well as a veritable agricultural experiment station. In order to disseminate the principles of improved farming, Buel carried on extensive correspondence, served as secretary of the New York State Board of Agriculture, wrote many articles for the agricultural press, made *The Cultivator* which he edited the most popular farm periodical in the country, and promoted the cause of agricultural education in the New York legislature and elsewhere. Motivating his many and varied activities was his profound faith in the importance of agriculture to a nation and in the necessity of an educated citizenry if democracy was to survive and fulfill the destiny which he visualized for it.

The main part of this volume consists of writings on agriculture by Buel himself. The first section (pages 3-129) is devoted to correspondence, editorials, and articles by Buel from *The Cultivator* and other farm periodicals. The second (pages 133-255) provides the texts of Buel's addresses before agricultural and horticultural societies. The third section (pages 259-586) is a reprinting of the 1839 edition of Buel's book, *The Farmer's Companion*, and its appendices.

Agricultural economists will be especially interested in this edited reprinting of *The Farmer's Companion*, and comparisons of its contents with those of a comparable modern handbook would be enlightening. The book was originally prepared at the request of the request of the Massachusetts Board of Education for use in the

school and rural libraries of that State. Its twenty-seven chapters are a summary of Buel's agricultural experience and wisdom. They cover practically every phase of husbandry and reveal the author as a master in his time. Concerning the book's scientific and literary attainments, Buel himself wrote: "I write as I think and practice; and have endeavored to adapt my style to the capacities of common readers Indeed, so far as my ability would permit, I have endeavored to unite science and art, as I think they ever ought to be united, in all the business of farming of which I have treated." According to Buel, "The great objects of the farmer should be *to obtain the greatest returns for his labor, without deteriorating the fertility of the soil: and to restore fertility, in the most economical way, where it has been impaired or destroyed by bad husbandry.*"

The introduction is an excellent interpretative summary of Buel's life. The editorial annotations are well done. Although there is apparently no entry that leads to such data as Buel's outline of objectives for a board of agriculture (pages 50-51) which Commissioner Newton is supposed to have used as a guide in inaugurating the United States Department of Agriculture, the index is probably adequate. The volume is a significant and useful addition to the literature on agricultural history.

EVERETT E. EDWARDS

U. S. Department of Agriculture

PUBLICATIONS RECEIVED

- Carman, H. J. , "Jesse Buhl, Agricultural Reformer," New York: Columbia University Press, 1947. Pp. 410. \$4.00.
- Collings, Gilbeart H., "Commercial Fertilizers," 4th edition, Philadelphia: The Blakeston Co., 1947. Pp. 498.
- Dewhurst, J. F., "America's Needs and Resources," New York: Twentieth Century Fund, 1947. Pp. 812.
- Duddy, E. A. and Revzan D. A., "Marketing, An Institutional Approach, " New York: McGraw-Hill Book Co., 1947. Pp. 661. \$4.50.
- Ezekiel, Mordecai and Associates, "Towards World Prosperity," New York: Harper and Brothers, 1947. Pp. xiv, 446. \$5.50.
- Goldschmidt, Walter, "As You Sow," New York: Harcourt, Brace and Company, 1947. Pp. 275. \$3.00.
- Jones, Robert L., "History of Agriculture in Ontario, 1613-1880," Toronto: University of Toronto Press, 1947. Pp. 390. \$4.25.
- Kaplan, A. D. H., "The Guarantee of Annual Wages," Washington: The Brookings Institution, 1947. Pp. 226.
- Pond, G.A. and Boss, A., "Modern Farm Management," St. Paul: Hedde Webb Publishing Co., 1947. Pp. 884. \$4.00.
- Report of the China-United States Agricultural Commission, Washington: Office of Foreign Agricultural Relations, 1947. Pp. 264.

Back Issues Wanted



The following back issues of the JOURNAL are needed. If you have usable copies, the secretary-treasurer will pay \$1 each for:

Vol. XXVIII (1946) No. 1 (Feb.), 2 (May), 3 (Aug.)

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Vol. V (1922) No. 1 (Feb.)

Vol. IV (1921) No. 1 (Feb.), 2 (May), 3 (Aug.), 4 (Nov.)

Vol. III (1920) No. 1 (Feb.), 2 (May)

Vol. I (1918) No. 1 (Feb.), 2 (May), 3 (Aug.), 4 (Nov.)



L. J. Norton, Secretary-Treasurer
305 Mumford Hall
University of Illinois
Urbana, Illinois

NEWS NOTES

The Sixth International Conference of Agricultural Economists was held August 28 to September 6 at Dartington Hall, Totnes, Devon, England. In addition to 20 Americans and some 30 British, representatives were present from Australia, Belgium, British West Indies, Canada, China, Czechoslovakia, Denmark, Egypt, Finland, France, Germany, Hungary, India, Italy, Netherlands, New Zealand, Palestine, Poland, Spain and Switzerland. The proceedings were in English, were transcribed, and will be published. This conference was initiated in 1929 at Dartington Hall and four subsequent conferences were held before the war, at Cornell University in 1930, Bad Eilsen, Germany in 1934, St. Andrews University in Scotland in 1936, and Macdonald College in Quebec in 1938. Throughout the entire period Mr. L. K. Elmhirst has been the president of the Conference.

It was agreed by the Conference that the subscriptions would be \$10 for the two-year period until the next Conference. This subscription will cover the proceedings and four issues of the *Journal of Agrarian Affairs* which are planned for the next two years. This *Journal*, edited by John Maxton, was designated as the official journal of the Conference until such time as the organization is in position to have its own publication. If you wish to subscribe, Professor L. J. Norton, University of Illinois will accept the \$10 and forward it to Mr. Currie, the honorary secretary-treasurer of the Conference. Dean E. C. Young of Purdue University was elected a vice-president of the Conference along with Professor Minderhoud of the Netherlands. Mr. Elmhirst was reelected president and Mr. J. R. Currie, honorary secretary and treasurer.

Five general topics were discussed on the program. On each, one paper was presented, followed by general and mostly informal discussion. The five topics were (1) Movements of Farm Population, opened by Mr. Anonymous who turned out to be John Maxton; (2) The Flexibility of Land Tenure, Capital and Credit Systems to Meet Technical, Economic and Social Developments, opened by President Renne of Montana State College; (3) Effectiveness of Market Mechanism for Adjusting Farming to Public Needs, opened by L. J. Norton; (4) The Place of State Buying and Selling in Free World Trading, opened by Dr. Anthony Gilpin, and (5) The Human Satisfaction of Rural Work and Rural Living, opened by Professor A. W. Ashby of the Agricultural Economic Research Institute, Oxford. In addition, papers were read on some 13 other topics followed by more or less extended discussion.

In an attempt to meet the need for a medium for the expression of views on farm policy, Iowa State College recently has authorized the Iowa State College Press to publish a new quarterly journal, *Farm Policy Forum*. The nature of this journal is clearly shown by the following statement which will be printed on the inside of each front cover: "Farm Policy Forum is published to bring to public attention timely and often controversial articles in the farm policy field. This journal is not an official publication of Iowa State College. Neither the College nor *Farm Policy Forum*

assumes responsibility for the views or opinions expressed in this publication. What the *Farm Policy Forum* does accept is the responsibility for giving those views and opinions an opportunity to appear in its pages."

The responsibility for this Journal is lodged in an Editorial Board of five members. These members are Lauren K. Soth, formerly associate editor of *Iowa Farm Science*, and now on the editorial staff of the *Des Moines Register*; William Davidson, farmer, Stanwood, Iowa; Pearl P. Swanson, Foods and Nutrition Department; Iver J. Johnson, Agronomy Department; and Geoffrey S. Shepherd, Economics and Sociology Department, Iowa State College. The last named is chairman. Members of the Editorial Board are appointed for a term of five years, the terms of the first appointees being staggered so that the term of one member will expire each year. Francis Kutish will be the managing editor.

The Editorial Board is composed of residents of Iowa, chiefly because of the physical difficulty of bringing together for frequent meetings a board drawn from a wider area. But the scope of *Farm Policy Forum* is nationwide and indeed world wide. So the Board is setting up an Editorial Advisory Council of ten members, drawn from all over the United States.

The subscription price of the *Farm Policy Forum* is set tentatively at \$2.00 per year. The first issue is planned, also tentatively, for January, 1948.

Roice H. Anderson, recently with the University of Wyoming, has accepted an appointment as associate professor of Agricultural Economics at Utah State Agricultural College.

G. H. Aull, Head, Department of Agricultural Economics and Rural Sociology, Clemson College, has been appointed by Governor Strom Thurmond of South Carolina as one member of a Committee of Nine to study the state system of public education.

Warren R. Bailey, Division of Farm Management and Costs, BAE, is now stationed at Berkeley, California, after several years of service in the North Central States.

John A. Baker, who transferred from the Farm Security Administration to the Division of Land Economics, BAE, when he was released from the Navy in March 1946, has transferred to the War Department, and is now in Korea with the New Korea Company.

L. M. Bauknight has been appointed assistant professor of agricultural economics at Clemson College.

Quentin Bierman formerly in the Lincoln, Nebraska office of the Division of Farm Management and Costs, BAE, has been stationed at Bozeman, Montana.

Merril K. Bennett, Dean of the School of Social Sciences and Executive Director of the Food Research Institute of Stanford University, was one of six members of a scientific mission to Japan, which arrived at Allied Head-

quarters in Tokyo on July 19 and left on August 28. The purpose of the mission was to review with General MacArthur's staff and the Japanese plans which had been formulated for the future development of Japanese scientific and technological organizations.

Russell W. Bierman formerly of the Division of Farm Management and Costs, BAE, is now with the Federal Reserve Bank of Richmond, Virginia, on a research assignment.

John D. Black of Harvard University is being assisted in his courses this year by Visiting Lecturer Dr. A. G. Black, formerly Governor of the Farm Credit Administration and Dr. Charles D. Hyson, Economist for the Federal Reserve Bank in Boston.

C. F. Bortfeld has returned to North Dakota Agricultural College from where he was on leave to complete his graduate work for a doctor's degree at the University of Minnesota. He has been promoted to the rank of associate professor of agricultural economics.

G. E. Brandow, professor of agricultural economics, Pennsylvania State College, has returned to his duties at the College after a two-month leave to serve as economist for the recently established Northeast Farm Foundation.

Arnold Brekke has joined the staff of the Division of Agricultural Economics of the University of Minnesota as an instructor.

R. G. Bressler, Jr., of the University of Connecticut has been advanced to the rank of professor of agricultural economics. He recently received his doctorate at Harvard University.

John W. Brewster, formerly with the Division of Land Economics, BAE, has accepted a position as professor of social sciences at Kansas State College.

Walter M. Bristol, who is a member of the Department of Agricultural Economics at the State College of Washington, plans to take a year's leave of absence to continue his graduate work at the University of California.

M. E. Brunk was appointed associate professor of marketing at Cornell University July 1 after completing his doctor's degree there. He will be working on fruit marketing problems.

Dee A. Broadbent, associate professor at Utah State Agricultural College has been granted sabbatical leave of absence to complete his work for a doctorate at the University of Illinois.

Mark T. Buchanan, formerly Head of the Department of Agricultural Economics at the State College of Washington, was seriously injured in an air accident, but is recovering and probably will be back in his office before the first of the year. Dr. Buchanan suffered severe burns.

E. L. Butz, E. C. Young and L. S. Hardin from the Agricultural Eco-

nomics Department of Purdue University visited Denmark, Holland, Belgium and France after the international Conference of Agricultural Economists.

H. C. M. Case, Head of the Department of Agricultural Economics at the University of Illinois, has been granted leave of absence for a few months to serve as consultant to the Senate Agricultural Committee. Dr. L. J. Norton will serve as Acting Head of the Department during the interim.

R. Lee Chambliss, Jr., who returned to farm management Extension Service, University of West Virginia, when mustered out of service accepted a position as associate professor at the Department of Agricultural Economics at Virginia Polytechnic Institute on September 15, 1947.

Walter P. Cotton, formerly with the National Cooperative Milk Producers Federation and the Dairy Industry Committee in Washington, D. C., joined the staff of the Department of Agricultural Economics of North Carolina State College on September 15. His new position will be that of associate research professor of dairy marketing.

Joseph S. Davis, Director of the Food Research Institute of Stanford University, attended the first session of the Inter-American Statistical Institute as United States delegate in Washington, D. C., September 6 to 18, 1947. This meeting was held jointly with the 25th session of the International Statistical Institute.

Herrell DeGraff, Professor of Land Economics at Cornell University, served as research economist for the Northeast Farm Foundation during the past summer.

Milton Eberhard, a graduate in agricultural economics from the University of Idaho will be appointed assistant farm economist at the University on October 1. He has been with the National Reclamation Service for the past year and comes to Idaho to work under Flanagan-Hope marketing activities.

George E. Frick has been appointed instructor in agricultural economics to do marketing research at the University of Connecticut.

Charles J. Galpin, 83, died Sunday morning June 1, at his home in Falls Church, Virginia. Dr. Galpin, internationally known rural sociologist, retired in 1934 as head of the Division of Farm Population and Rural Life (Welfare) in the Bureau of Agricultural Economics. His retirement followed 15 years of service in charge of rural life studies in BAE, and 25 years of leadership in the field of rural sociology. During this period he achieved an international reputation, and in 1927 was tendered a special decoration by the King of Belgium in recognition of his contribution to the rural life movement of many countries. In addition to his work in this country, Dr. Galpin made first hand studies of rural conditions in a number of European countries to determine the factors underlying develop-

ment of a stable rural population. Dr. Galpin was a prolific contributor to papers and magazines on questions of rural life. He was author of several books on this subject and supervised preparation of numerous others. He was one of the early leaders in the American Country Life Association and served it and its objectives in many capacities.

C. H. Hammar, who has been on leave from the University of Missouri for the past year to assist with the work on food and agriculture in occupied Germany, is having his leave extended a semester so that he may continue this work.

Meyer A. Girshick has resigned as statistician in the Office of the Statistical Assistant to the Director of the Bureau of the Budget to accept a position with the Douglas Aircraft Corporation.

Peter Hansen, Division of Farm Management and Costs, BAE, spent a six-week period of leave at his father's home in Denmark.

Clifford M. Hardin of Michigan State College visited Denmark, Holland, Belgium, France and Germany after the International Conference of Agricultural Economists. He went under the sponsorship of a group of Michigan farm organizations with a view to obtaining first-hand knowledge of the current European food and economic situation.

A. H. Harrington has been on leave this summer from State College of Washington to finish his graduate work leading towards a Ph.D. He has been at the University of Illinois.

Marshall D. Harris has returned to the Division of Land Economics, BAE, after a year's leave of absence. His leave was devoted to a study of the Genesis of Land Tenure in the United States. The study was centered in the development of our land tenure policies during the colonial period, with particular emphasis on its English heritage. It is anticipated that the study will be reported in book form in about one year.

Karl Hobson joined the staff at the State College of Washington on September 1 as an assistant professor and assistant agricultural economist. Mr. Hobson spent approximately 10 years at the University of Idaho and more recently was with the Bureau of Agricultural Economics at Portland, Oregon.

James E. Honan has accepted a position as economist with the Interstate Milk Producers Cooperative at Philadelphia, Pennsylvania.

Donald C. Horton, principal agricultural economist, in charge, Mortgage Section, Division of Agricultural Finance, Bureau of Agricultural Economics, has completed a summer assignment as lecturer at American University.

Verle R. Houghaboom has been appointed assistant Extension economist in the Department of Agricultural Economics at the University of Vermont.

Vernon L. Israelsen, recently with the U. S. Housing Administration has been appointed as an associate professor of Agricultural Economics at Utah State Agricultural College.

H. Brooks James, professor of agricultural economics, on leave of absence during the past year pursuing graduate work at Duke University, has rejoined the staff of the Department of Agricultural Economics, North Carolina State College.

Sherman E. Johnson, Assistant Chief, BAE, went to Denmark with Peter Hansen as guide after the International Conference of Agricultural Economists.

Ronald W. Jones, Costs and Returns Section, Division of Farm Management and Costs, BAE, is on leave for the academic year at the University of Chicago.

Elmer Kiehl, formerly an assistant county agent of the Missouri Agricultural Extension Service, has been appointed instructor in Agricultural Economics.

E. Fred Koller has returned to his position as professor in Agricultural Economics at the University of Minnesota after a year's leave of absence to conduct a study of financing cooperatives for the National Bureau of Economic Research.

B. H. Kristjanson has been appointed assistant agricultural economist of the Agricultural Experiment Station, North Dakota Agricultural College. He is succeeding J. E. Aakhus, who resigned September 15 to go into private business.

Ellis W. Lamborn, a graduate of Cornell University in June 1947, has accepted an appointment as assistant professor of Agricultural Economics at Utah State Agricultural College.

Ben T. Lanham, Jr., has resigned as associate agricultural economist at the Alabama Polytechnic Institute and will take over the operation and management of his father's farm in South Carolina November 1.

Clarence W. Lokey received in August the first Ph.D. degree to be awarded by the reorganized Department of Agricultural Economics and Sociology at the A. & M. College of Texas. Dr. Lokey has returned to his position as Executive Secretary of the Division of Home Missions and Church Extension, Methodist Church, New York City.

Charles W. Loomer is now associate professor of Agricultural Economics at the University of Wisconsin. Mr. Loomer was previously with the Division of Land Economics, BAE.

J. E. Losey transferred from extension and research to teaching and research in Rural Sociology at Purdue University July 1, 1947. At that time Rural Sociology was transferred from the Division of Education and

Applied Psychology to the Department of Agricultural Economics, and graduate work in Rural Sociology at the Master's level was approved.

H. Allan Luke completed his doctor's degree at Cornell University in September and has joined the staff at the University of Maine as associate professor of marketing.

W. T. McAllister, graduate assistant, Pennsylvania State College, has accepted a position in the Department of Agricultural Economics at Delaware.

Paul S. McComas joined the staff of the University of Kentucky as associate professor in the Department of Farm Economics and assistant economist in the Agricultural Experiment Station effective June 15. Prior to that date, Dr. McComas served as agricultural economist in the Division of Farm Management and Costs, BAE. Previously he had been a member of the United States Armed Forces for two and a half years, and a half year as head of the Department of Agriculture of the University of Alaska.

Albert Duy McNair, one of the early workers (since 1908) in the field of Farm Management, long stationed in Arkansas, died at his home in Dansville, New York, on May 7, in his 81st year.

J. G. McNeely has joined the staff of the Department of Agricultural Economics and Sociology, A. & M. College of Texas. Dr. McNeely was formerly Area Representative for the Labor Branch, PMA, at Lincoln, Nebraska.

L. D. Malphrus, formerly assistant regional program analyst for the Farm Home Administration has accepted a position as assistant agricultural economist on the staff of the South Carolina Experiment Station at Clemson College.

D. A. Marshall has accepted a teaching position at Texas Tech., Lubbock, Texas.

John E. Mason transferred to the Division of Farm Management, BAE, from the Division of Land Economics. He will work on a study of the economic utilization of farm grown foods in livestock production.

W. W. McPherson, agricultural economist of the Bureau of Agricultural Economics, will spend a year at the Harvard Graduate School.

J. F. Miles, associate agricultural economist in the Dairy and Poultry Marketing Section of the Agricultural Extension Service, Washington, D. C., has resigned to accept a position with the South Carolina Experiment Station at Clemson, College.

William H. Nicholls has returned to the University of Chicago after three months of travel in South and Central America. During nine weeks in Brazil, he taught and lectured in Portuguese for the Instituto de Pes-

quizas e Analises Economicas and the Fundacao Getulio Vargas, both of Rio de Janeiro. During his trip, he also travelled extensively in the agricultural regions of Brazil, Argentina, Peru, Costa Rica, and Guatemala.

Don Paarlberg of the Agricultural Economics Department of Purdue University taught Agricultural Economics in the School for Town and County Religious Workers sponsored by Emory University at Atlanta, Georgia, July 2-18.

A. L. Perry, who received a master's degree in the Graduate School at the University of Maine this summer, has joined the staff at the Missouri College of Agriculture as an instructor in Agricultural Economics.

Arthur W. Peterson received a promotion from associate professor to full professor in the Department of Agricultural Economics at the State College of Washington.

Everett E. Peterson on September 1, 1947 was appointed to the position of assistant professor in teaching and research in Farm Management at Michigan State College. Mr. Peterson was formerly with Montana State College and the U. S. Department of Agriculture, Bureau of Agricultural Economics.

Walter Henry Pierce, assistant professor in the Department of Agricultural Economics, North Carolina State College, is on leave of absence under a G.E.B. Fellowship. Professor Pierce will pursue graduate work in the Department of Agricultural Economics at the University of Minnesota.

Clarence E. Pike, formerly with the Farm Credit Administration in Washington, D. C., has joined the staff of the Department of Agricultural Economics, North Carolina State College as extension marketing economist.

James S. Plaxico completed his requirements at Clemson College for the degree of master of science and accepted a position as assistant agricultural economist at Virginia Polytechnic Institute, on July 1, 1947 to do research in farm management.

R. C. Ross, Department of Agricultural Economics, University of Illinois, was a visiting professor at the University of Arkansas where he conducted a summer short course on farm planning for supervisors of G. I. trainees.

Waldo. S. Rowan, a 1940 graduate of the University of Georgia has been appointed assistant instructor in the Department of Agricultural Economics at the University of Georgia. He comes to the University of Georgia from the United States Bureau of Agricultural Economics and previous to his employment he served in the Army Air Forces.

Sargent Russell who has been with General Foods Corp. in Caribou, Maine, recently joined the staff of the Department of Agricultural Economics at Massachusetts State College.

Rainer Schickele has become chairman of the Department of Agricultural Economics and Principal Economist of the Agricultural Experiment Station of North Dakota Agricultural College.

Richard G. Schmitt recently joined the Short-Term Section, Division of Agricultural Finance, Bureau of Agricultural Economics, upon return to the Bureau from Iowa State College where he served as instructor in agricultural economics during 1946 and completed requirements for his M.S. degree.

Sidney Schmukler has been appointed assistant professor of Agricultural Economics at the University of Connecticut.

Harold Scoggins has joined the staff of Arkansas University as instructor in the Department of Rural Economics and Sociology. Formerly with the Bureau of Agricultural Economics, USDA, he has been more recently supervisor of the University of Arkansas Tabulating Service Bureau.

L. H. Simerl returned to the University of Illinois September 1 as associate professor of Agricultural Economics. During the last five and a half years Mr. Simerl has been Director of Research for the Illinois Agricultural Association.

L. E. Slater joined the extension staff at Cornell University July 1 as assistant professor of marketing. Slater was formerly comptroller for Cooperative P and C Family Foods, Inc.

J. M. Stepp has been promoted from associate professor to professor of Agricultural Economics at Clemson College.

Christian Stokstad, Division of Farm Management and Costs, BAE, has moved to Boise, Idaho where he will make a study, in cooperation with the Idaho Agricultural Experiment Station, of quick-freezing of vegetables and of the vegetable seed enterprises.

Maurice C. Taylor finished his master's degree in the Department of Agricultural Economics at the State College of Washington in June and carries the title of instructor and junior agricultural economist.

Howard A. Turner retired in June from his position as agricultural economist with the Division of Land Economics, BAE. He had been with BAE since 1912.

Norman Urquhart, formerly with the Division of Farm Management and Costs, BAE, has joined the staff of Western Illinois State College at Macomb.

Arthur W. Van Dyke was recently appointed as association specialist in the extension farm labor program at Cornell University. He replaces J. K. Pasto who has resigned to resume his graduate work.

Karl A. Vary accepted a position as economist with the Federal Reserve Bank of San Francisco.

Harold Walkup is now an instructor and junior agricultural economist in the Department of Agricultural Economics at State College of Washington.

Donald J. Watson who received his master's degree in agricultural economics at Purdue University in June, has accepted a full-time teaching position in Agricultural Economics at Purdue.

Thomas J. Whatley of Alabama has been appointed assistant agricultural economist at the University of Tennessee.

John W. White was appointed head of the Rural Economics and Sociology Department of the University of Arkansas on July 1, 1947. For several years prior to his appointment, Dr. White was Superintendent of the Rice Branch Experiment Station, University of Arkansas, at Stuttgart, Arkansas.

Sheldon W. Williams has been appointed associate professor of agricultural economics at Alabama Polytechnic Institute. Dr. Williams was formerly associate professor of agricultural economics at the University of Vermont.

Walter J. Wills has joined the agricultural economics staff, University of Illinois, as assistant professor. For the past ten years, excepting the time that he was in military service, Mr. Wills has been associated with the Production Credit Bank of St. Louis.

G. B. Wood of the Agricultural Economics Department of Purdue University taught the course in Economics of Cooperation at the 2nd session of the summer school at Colorado A. & M. College, July 21 to August 15.

Noel H. Wood has joined the staff of the University of Arkansas as assistant professor of rural economics and sociology.

Clifford Zuroske, who has been on leave of absence to take advanced work at Purdue and Chicago universities, will return to the State College of Washington to do research work and teaching in the field of work simplification.

The following awards have been made by Harvard University under a grant from the Carnegie Corporation for Agricultural Extension workers:

George E. Lord, Assistant Director of Extension, University of Maine

William Teutsch, Assistant Director of Extension, University of Oregon

Gerald Huffman, County Agent, Butler County, Ohio

Paul E. Nystrom, County Agent Leader, University of Maryland

A. H. Maunder, Supervisor of Extension Programs, University of Nebraska

Floyd E. Rogers, Extension Supervisor, University of Missouri

Leonard Schruben, Office of Agricultural Extension, U. S. Department of Agriculture.

This group will work under the direction of Professors John D. Black and John Dunlop. Professors Black and Dunlop will be assisted in directing

the work of this group by members of the staffs of the Graduate School of Education and the Department of Economics, Government and Social Relations.

The following fellowships in agricultural labor have been awarded under a grant from the Ferguson Foundation to Harvard University:

Melvin R. Janssen, M.S., University of Illinois

Howard Parsons, formerly of the BAE

Alexander Morin, University of Chicago, registered at Harvard University during this past year

Robert Glasgow, recently from Texas A. & M. College and the BAE

George Haythorne, from the Department of Labour, Ottawa, Canada, in charge of farm labor during the war

Barbara Reagen, formerly on the staff of the BAE

In addition, Lloyd Fisher, Research Associate, Institute of Industrial Relations, University of California, and Economic Consultant to U. S. Department of Interior, has been awarded a Jacob Wertheim Fellowship in Industrial Relations and will work with this group.

ANNUAL BUSINESS MEETING AMERICAN FARM ECONOMIC ASSOCIATION

NORTHERN BAPTIST ASSEMBLY, GREEN LAKE, WISCONSIN
SEPTEMBER 11, 1947

Remarks by the President

In the absence of Secretary-Treasurer Norton, Stanley W. Warren, First Vice-President was appointed Acting-Secretary for the meetings of the Executive Committee and the Business Meeting.

Total registration at the meetings was 528, which number does not include those attending meetings but not registered for lodging at the Northern Baptist Assembly.

The President expressed his grateful appreciation to those many individuals who assisted in the formulation of the program.

The reports of the President, the Secretary-Treasurer and the Editor covering the full fiscal year will appear in the February 1948 issue of the JOURNAL OF FARM ECONOMICS. The report of the election tellers will appear in the same issue.

REPORT OF THE EXECUTIVE COMMITTEE

The following actions taken by the Executive Committee at its meeting of September 7, 1947, were brought before the membership at the business session for approval.

The Executive Committee recommends the following resolution for adoption:

The Association shall enter into a joint membership arrangement with the Canadian Agricultural Economics Society on the following basis:

1. Membership in both Associations to be available for \$5.50 a year. Of this \$1.00 is to go to the Canadian Agricultural Economics Society, and \$4.50 to the American Farm Economic Association.

2. Separate memberships to be available, as before on the basis of \$1.00 for the Canadian Agricultural Economics Society, and \$5.00 for the American Farm Economic Association. However, both Associations will encourage joint membership.

3. Proceedings of the Canadian Agricultural Economics Society to be published and sent to all joint members, and to the members of the Canadian Agricultural Economics Society.

4. Canadian Agricultural Economics Society to have full responsibility for this special Proceeding's issue, to pay the cost of it, and to receive revenues from its sale to non-members.

5. Members of the American Farm Economic Association who do not take joint membership shall continue to receive the JOURNAL, but not the special Canadian Agricultural Economics Society Proceedings issue.

6. The President of the Canadian Agricultural Economics Society to be a member of the Executive Committee of the American Farm Economic Association.

Unanimously approved.

The Executive Committee recommends the following resolution for adoption by the membership:

A joint membership shall be established to include the Canadian Agricultural Economics Society, the Western Farm Economic Association, and the American Farm Economic Association. The fee for this membership shall be \$7.00 to be divided as follows: \$1.00 to the Canadian Agricultural Economics Society, \$1.50 to the Western Farm Economic Association, and \$4.50 to the American Farm Economic Association.

Unanimously approved.

The Executive Committee recommends that the Association publish reprints of articles in particular fields in Agricultural Economics in accordance with the following plan:—

The President of the Association with approval of its Executive Committee shall designate the Editor of the JOURNAL OF FARM ECONOMICS and the Editorial Council of the American Farm Economic Association as a special committee to select the subject and title of the volume. This special committee shall also establish general rules as to the size of the volume, its makeup, and general criteria for selection of articles to be reprinted. The special committee shall also select and recommend to the President for his approval, the individual(s) who shall be the editor (or joint editors) of the volume.

The editor(s) shall be responsible for the selection of the articles to be printed in the volume. In this task he shall be given leeway in exercising professional judgment and consulting with professional colleagues. The Editor shall also be responsible for the organization of the volume including the order of the articles. Furthermore, he will be responsible for preparing or arranging for preparation of the bibliography and index. (These recommendations are based upon a report prepared by a committee composed of Sidney Hoos and Henry Keller Jr.)

Unanimously approved.

REPORT OF COMMITTEE ON MERITORIOUS RESEARCH AWARD

Presented by F. V. WAUGH

The Special Awards Committee recommends the following arrangements for the Meritorious Research Award:

1. The Meritorious Research Award will be conferred in recognition of an outstanding piece of research in agricultural economics. It will not be limited to members of the American Farm Economic Association.

2. The Award will be made not oftener than once a year by a Committee of three persons appointed by the President of the American Farm Economic Association, normally for six year terms with one appointment expiring every two years.

3. This Committee shall have full responsibility for making awards. Research publications may be submitted to the Committee by the authors or by members of the Association.

4. The research results considered must have been published during the

two years immediately preceding the year in which the award is made. Publication does not necessarily imply printing, but does imply availability for general use and not merely for private circulation.

5. Four factors will be considered in making the Award: a) originality, b) significance, c) evidence or promise of useful applications, and d) age of authors, preference being given to authors under forty. The Special Awards Committee may propose to the Executive Committee revisions of this provision.

6. The Award will include a suitable memento and a cash honorarium. In cases of joint authorship, each author will receive a memento, and the cash honorarium will be divided equally among the authors. The Executive Committee will determine the character of the memento and the amount of the honorarium.

Respectfully submitted,
J. S. DAVIS
W. C. WAITE
F. V. WAUGH, *Chairman*

Unanimously approved.

REPORT OF COMMITTEE ON SPECIAL GRANTS

Presented by A. C. HOFFMAN

The following recommendations regarding solicitation procedure are submitted for approval:

1. The program for solicitation should be general and should include a good cross section of business firms and enterprises with particular emphasis on cooperatives in order to avoid any appearance of partiality or undue preference toward certain groups.

2. All solicitations should be made on American Farm Economic Association stationery to avoid any confusion.

3. If the committee succeeds in raising more money than the goal of \$5000, they would like to make the following suggestions to the Awards Committee for the distribution of these funds:

- a) Consideration might be given to awarding more than one prize annually.
- b) Arrangements might be made to assist in printing the prize winning papers for general distribution.

Respectfully submitted,
JULIUS HENDEL, *Chairman*
H. B. ARTHUR
A. C. HOFFMAN

Unanimously approved

REPORT OF COMMITTEE ON LIBRARY AND
LIBRARY-CUSTODIAN

Presented by W. H. GLOVER

Objectives

To preserve the writings of the members of the American Farm Economic Association in a way to honor the contributors and encourage all members to record their creative thinking in permanent form.

To assemble a compact and readily available reference library that portrays the growth of the thought of the members of the Association in the field of agricultural economics.

Collections

The specific content of the collections should be determined by the Library-Custodian. In general the collections should be made up of:

1. Permanently bound writings of the members of the American Farm Economic Association, contributed and autographed, insofar as possible. (In general, bulletin and reprint material should be accepted only if permanently bound.)
2. A bound set of the JOURNAL OF FARM ECONOMICS.
3. A limited number of especially valuable or rare, or not readily accessible items in the field of agricultural economics. This section may include manuscripts, bibliographies, or other related materials, and may be purchased.
4. The official records (not in current use) of the American Farm Economic Association.

Library-Custodian

1. Appointment—The Library-Custodian should be appointed by the President of the American Farm Economic Association to serve for a term of not less than four years.

2. Duties—

- a) Determine the specific content of the collection.
 - b) Canvass all living members of the American Farm Economic Association and families or friends of deceased members to solicit gifts for the library.
 - c) Select and purchase desired items not secured by gift.
 - d) Devise a book-plate or other mark of ownership.
 - e) Secure the use of suitable housing for the collections until such time as the Association may designate headquarters for it.
 - f) Provide care and maintenance for the collections.
 - g) Report acquisitions quarterly in the JOURNAL OF FARM ECONOMICS.
3. Incumbent—We strongly urge that Asher Hobson, who originated the idea of the library, be appointed the first Library-Custodian.
4. Assistance—We recommend that the President of the American Farm Economic Association appoint a committee of three on whom the Library-Custodian may call for special assistance. The members of this committee should serve for four years on a staggered year basis.

Funds

We recommend that the Executive Committee be authorized to seek means of providing a special grant to the amount of \$1000 for this purpose.

Respectfully submitted,
 WILBUR H. GLOVER
 MARY G. LACY
 ANNE DEWEES TAYLOR

Unanimously approved.

The Executive Committee requested authority for the new Executive Committee to meet, in case of need, at Association expense as soon as practical after the election of officers.

Request approved.

The President opened the meeting for discussion of the questions of when and where the next annual meeting should be held. Discussion from the floor indicated a heavy majority in favor of summer meetings. A few expressed the thought that we should not become completely divorced from the other social science associations. The following motion was made:

It is recommended that the Executive Committee plan a meeting for the summer of 1948, to be held at the Northern Baptist Assembly if possible, and that the meeting date be before the opening of schools if possible. Carried unanimously.

Mr. F. V. Waugh proposed the following resolution:

We, the members of the American Farm Economic Association, wish to express our thanks to the Northern Baptist Assembly for making our stay at Green Lake so pleasant and so comfortable. We liked the food, the sleeping accommodations, the meeting rooms, the swimming pool, and the golf course. We were inspired by the beautiful surroundings. But most of all we greatly appreciated the quiet and efficient help of the management and its toleration of our bad habit of smoking. Agricultural economists are not very religious, but we liked the Northern Baptists, and hope they may be willing to see us again some day.

Unanimously adopted by rising vote.

MINUTES OF MEETING OF EXECUTIVE COMMITTEE

SEPTEMBER 10, 1947

Meeting called to order by President Hobson.

Members present:

Asher Hobson —*President*
 Stanley Warren —*Vice President*
 Marion Clawson —*Vice-President*
 F. V. Waugh —*Past-President*
 D. B. DeLoach —*President-elect of Western Farm Economic Association*
 W. F. Chown —*Representing Canadian Agricultural Economics Society*
 Warren C. Waite—*Editor*

The Editor raised the question of the size of the Proceedings issue. The Committee decided that the volume should continue to be limited to 400 printed pages, except as additional pages may be financed by outside contributions.

In response to a request from J. C. Capt, Director, Bureau of the Census to appoint a member of the Association to act on the Special Advisory Committee for the 1950 Census of Agriculture, the Executive Committee nominated John F. Timmons.

STANLEY W. WARREN, *Secretary, pro-tem*

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No. 4, Part II

THE BUREAU OF AGRICULTURAL ECONOMICS— THE EARLY YEARS*

LLOYD S. TENNY

FOR three men to attempt to give impressions of the Bureau of Agricultural Economics is a bit like the three blind men attempting to describe the elephant. Much depends on the point of approach each makes. I am not implying that the three of us are blind, nor do I want to give the impression that the Bureau in any way resembles an elephant, although many people would have admitted freely that there were resemblances! Perhaps because an elephant is rather unwieldy and sometimes does not know just where he is going.

I am reminded that once I was in Riverside, Calif., when a circus elephant decided to see the town alone. He ended up on a wild rampage through the grounds of the Mission Inn, finally taking a short course through the barber shop, upsetting plenty of nerves as well as destroying the beautifully arranged bottles of lotions and toilet powders. Those of us who remember the very early days of the Bureau can doubtless see some resemblances. Suffice to say, the Riverside elephant was finally captured and put in his proper place and went along doing his prescribed work. The Bureau of Agricultural Economics also found its place and has done some real and important jobs.

Officially the Bureau of Agricultural Economics came into being by an Act of Congress making appropriation for the fiscal year beginning July 1, 1922. This provided for the merger of the Office of Farm Management and Farm Economics with the Bureau of Markets and Crop Estimates.

In treating of the historical background, I do not care to go much into detail as other factors are more important and much more interesting to this group. Of the major component parts of the

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 10, 1947.

Bureau on July 1, 1922, the oldest was crop estimating. The first appropriation for collecting agricultural statistics by the Department of Agriculture was provided for by the Appropriation Act of February 25, 1863. For the fiscal year ending June 30, 1865, the first distinct and separate provision was made for collecting agricultural statistics, the amount appropriated being \$20,000. Regularly monthly reports on condition of crops and annual reports on acreage, yield per acre and production of important crops and numbers of livestock on farms January 1, were begun in 1866. The year 1866, therefore, marks the real beginning of a continuous series of agricultural statistics under the direction of the Department of Agriculture.

This work was gradually developed along the original lines until 1912 when the Crop Reporting Board, which had been organized in 1905, began to forecast production of important crops *prior to harvest*. With the organization of the Bureau of Statistics in 1903 and its reorganization in 1914 under the name of the Bureau of Crop Estimates, definite recognition was made of the value of statistical work in the Department of Agriculture "to the people of the United States—particularly to farmers and stockmen." Thus the Bureau of Crop Estimates continued until it became a part of the Bureau of Agricultural Economics.

Turning now to the field management and rural economics; as could well be expected this work in the Department originated in the Production Bureau. Investigations of farm management and farm practices were set on foot by the Bureau of Plant Industry in 1904. For several years this work was conducted by the Division of Grass and Forage Crop Investigations, under the direction of Dr. W. J. Spillman, in 1905 as agriculturist, and from 1906 to 1916 as "Agriculturist in charge of farm management." In the Agricultural Appropriation Act for the year ending June 30, 1907, there appeared for the first time the phraseology, "To investigate and encourage the adoption of improved methods of farm management and farm practice."

On July 1, 1915, the Office of Farm Management was transferred from the Bureau of Plant Industry to the Office of the Secretary. At this time there were some changes made by relocating lines of work and Dr. Spillman was made Chief of Farm Management. Dr. Spillman resigned in 1918 and Secretary Houston appointed an outside committee to draw up a plan for the reorganization of the

office. This committee made its report, which was accepted, and Dr. H. C. Taylor became Chief on March 8, 1919. The work was considerably expanded and Dr. Taylor remained as Chief of Farm Management until July 1, 1921, when he was appointed Chief of the Bureau of Markets and Crop Estimates. It was not until July 1, 1922 that the full union of crop statistics, farm management and marketing became officially one, with Dr. Taylor as Chief.

It is necessary now to go back once more to clear the picture of the marketing work. The Office of Markets had been created by the Secretary of Agriculture on May 16, 1913, with Charles Brand as Chief. The first appropriation bill was for the fiscal year 1914 which set aside \$50,000 for the purpose of outlining the work of the various Bureaus in connection with the marketing and distribution of farm products, to report results already accomplished and to discuss plans for the future development of these investigations. It was on July 1, 1917—again by the Appropriation Act—that the Bureau of Markets was established with an appropriation for the fiscal year of 1918 of \$1,718,575. Brand remained as Chief until his resignation June 30, 1919, and was succeeded by George Livingston, who in turn, remained until Taylor's appointment July 1, 1921.

It has seemed wise to give these historical facts, first, to give briefly to this association a short history of the development of Agriculture Economics in the Department of Agriculture, knowing how difficult it is for most of us to carry these details in mind and, second, and more important, to bring to attention for our discussion the rather complicated and involved lines of work that were merged into the Bureau of Agricultural Economics. Naturally there was some opposition toward the advisability of uniting all these lines of work—opposition especially by men in the Bureau of Markets—which was a new and very virile bureau, and a bureau under Brand that was really proud of its work—and rightly so. It had stepped out into new fields—such as market news and inspection of farm crops—and had covered the United States with young and well-trained men and probably by 1920 was the best known and most widely praised Bureau in the Department. It is unnecessary to comment that it had taken a long time to awaken the American farm public to any full realization that possibly something could be done to help farmers do a better job in marketing their crops and livestock. Brand, too, had been the energetic type to sell this idea both to the farm people and to Congress. It was a success. In the

second place, some opposition was created, also, by the manner in which the consolidation was brought about. A committee of outside economists had been appointed. This committee worked largely in a secret manner—at least insofar as the staff of the Bureau of Markets was concerned. The secrecy might have been necessary, and it is a safe bet that had the staff of the Bureau of Markets been aware of the move, a considerable amount of opposition could have been created—possibly even enough to have defeated the plan in Congress. There was quite a decided feeling in the Bureau that it—the largest segment—was being beautifully swallowed up by a group that many in the Bureau never knew existed. I hasten to say, however, that aside from working in the Bureau with a name —“Agricultural Economics”—which was never popular with the market man in the early days, these Bureau of Market men gave very loyal support to the new Bureau and to Mr. Taylor, who proved himself an excellent administrator in the newly-formed Bureau.

But enough of this history. It's far more interesting to discuss some of the problems that were before us in these early days. Naturally my comment will be mostly in the marketing field. It was this work that Dr. Taylor had asked me to handle. Many of the problems were begun long before and were carried on by us or perhaps brought to some satisfactory end. Other problems seemed to be getting themselves always to the front but none more so than cotton standards and grain standards. This was partly due to the fact that the Cotton Futures Act and the Grain Act, both regulatory measures, were old friends to the Department when both Dr. Taylor and I came with the Bureau. This entire paper could easily be devoted to either of these subjects and the details would be most interesting. Under the Cotton Futures Act, the Department controlled the standardization of all cotton offered for delivery on exchange contracts. It also reported cash prices in ten leading southern markets for the different grades and staple lengths and these differentials were by law the differentials that applied in the delivery of all contracts in New York and New Orleans. This brought the Bureau squarely up against one of the great agricultural crops and one in which politics played a most important part. In discussing another phase of our work later, I hope to dwell a little more on this question of politics affecting the Bureau's work.

American cotton had a world distribution. For 100 years more or less Liverpool, England had been the leading cotton market and had controlled most of the international matters affecting American-grown cotton. Liverpool standards had applied for practically all of our "out-of-country" shipments. In disputes, the Liverpool exchange had arbitrated them. This applied not only to cotton going to English mills, but cotton grown and shipped by American firms to France, Belgium, Holland, Germany, Spain, and Italy. Cotton, however, sold in this country and for delivery on the cotton exchanges was subject to American standards and to the Department of Agricultural Classing Boards and to an Appeal Board in the Bureau of Agricultural Economics. By 1921, the American cotton trade was becoming very tired of having its cotton subject to Liverpool arbitration, and of their own volition approached the Bureau on the question of International standards based on our American work which, incidentally, had been done in a careful and scientific manner.

The study of cotton grades is a fine illustration of the early scientific research work done in the field of standardization. The whole story of the acceptance of American standards throughout the world is too long for this discussion but it is enough to say that when Dr. Taylor started out to do a job, it was usually done, and one of the high points in my Bureau experience was when I presented formal agreements on beautiful paper, with the great seal of the Department of Agriculture to the Exchanges in Liverpool, Manchester, Ghent, in Holland, in France, at Barcelona, Berlin, and Milan. Every Exchange officially signed—even though some signed just as enthusiastically as some countries signed the Peace Treaty after the First World War. The important thing, however, is that they did sign and from then until now American standards for American grown cotton has applied throughout the world.

During these early years of the Bureau a great amount of work had to be done on grades of grain. Dr. Taylor deserves much credit for the interest he took in attempting to develop the correct standards for grain, especially for wheat. While the standards were basic to the trading in grain futures, the problem went far deeper than this as the milling requirements were changing. And these new ideas needed by the milling and baking industries had to be reflected in the official standards. Before going too far in developing satisfactory grain standards a complete laboratory had to be es-

tablished for testing grains and for even following the product through the baking processes. I mention this largely for the reason that it shows how far afield apparently the work of the Bureau of Agricultural Economics went and yet how important and closely related were some subjects in so-called pure scientific research to the real economic aspects of the problem. Personally, I feel that this combination of scientific and economic research in grain grades represents some of the finest work done by the Bureau. Many of the same problems or at least similar ones were presented also in establishing grades for fruits and vegetables as well as for grades of livestock and meats. In fact, there was scarcely an agricultural product for which grades were not established, and these all were based largely not only on trade practices but also on scientific studies.

I want here to discuss for a moment one point to which much thought was given and which was not easily solved. The Bureau of Markets had been established and operated almost wholly among commodity lines. Each major crop or closely related crops had its own organization with a strong division leader at its head. The Crop Reporting work was largely handled as one unit. Farm management, however, had several divisions of work based on functional activities. Price studies were carried on largely horizontally covering all fields or crops. Banking studies were separate. Land problems had to be handled largely by farm units or great divisions of the country devoted largely to some important crop, the major one in the territory. Likewise there were studies in taxation which of course had no relationship to special crops. It is easy to see that conflicts might arise over the proper division in the Bureau to engage in some line of research. However, by group meetings of all division leaders and by good administration these conflicts never reached any great importance and so it continues that most standardization work, the inspection and certification work that developed very rapidly, the market news with its extensive wire service which was very important when the Bureau was formed and grew greatly as time went on, all largely continued in the commodity divisions. The other lines of research continued as they had been, but I think that the men at the head of the other lines of work frequently received excellent ideas and advice from some of the commodity leaders.

As one method of marketing there was a division for the study of

cooperative marketing. The Bureau was always sympathetic toward the farmers' cooperatives, but never was it felt that this system of marketing was a panacea for all the farmers' ills. Under Christensen this division of cooperative marketing became more important and many fine studies were made of the cooperative movement both here and abroad. A fine line of historical data were collected and reports were published from time to time.

Here I want to digress long enough to mention one phase of marketing with which the Bureau came in close contact during its early period, namely, futures trading.

The Cotton Futures Act and the Grain Act were on the books at the beginning of the Bureau's history. Futures trading has always been a controversial matter and unfortunately people in general, including the economics staffs in our agricultural colleges, are apt also to be biased for or against; generally against, however. From the days of Dr. Taylor through my administration and, I think, through Olson's administration, the thought was uppermost in our minds to make a careful research study of futures trading but for one reason or another, usually because there was no man available, such a study was never made.

In the light of my experience after leaving the Bureau, during which time I managed a futures trading mart for approximately fifteen years, I am convinced of the advantages that such a market brings, provided it is properly handled. Likewise, I am convinced still of the need of a thorough economic study by the Bureau or by one or more of the outstanding colleges.

The Federal Warehouse Act was another important field of service that developed and was of great benefit to many lines of farming. One could go on almost indefinitely in an attempt to cover the many services and regulatory laws that came to the Bureau.

But time is not available for a further digest or discussion of them. In all these services the Bureau was active and energetic, equipped with a splendid staff of well trained men. Our policy was to be of service and never to attempt to force upon the farmers regulating acts that took the nature of centralized control or a bureaucratic attitude.

In the light of the development in recent years this last statement suggests two more subjects that must be covered if one gets any complete picture of the early days of the Bureau of Agricultural Economics. These are the "Farmer's Intention to Plant Crops

and Breed Livestock" and "Price Forecasts." The farmer is by nature an individualist who wants to handle his farm as he chooses and to plant any crops in any quantity that he desires—this without any great reference to what other farmers intend to do. No over-all production picture had ever been given to aid any producer to know what his competitors were doing except to report what *had been done* as reflected in the reports of the Crop Estimating Board. So, early in the program of the Bureau an effort was made through the crop reporting staff largely, to attempt to find out what a cross section of representative farmers were actually planning to do, compile this data and publish it in time to give the progressive producers an opportunity to adjust their operations if such adjustments seemed wise. Wheat seeding for instance covered a long enough time so such a report if published early could be and was of great value to other farmers. The number of sows to be bred based largely on a comparison with the preceding year was good information. This work was all educational. There was no attempt to enforce the findings and no law on which to base the work. County agricultural agents were brought into the picture by the active cooperation of the Extension Service. It is safe to say that probably no great percentage of farmers was reached but in the light of developments in recent years, the tremendous importance of this early work can be well understood.

The second mentioned line of work fits directly into this same picture. In planning his year's program the farmer needed information about supplies and demand. This means possible future prices. The best that could be done was to supply information about the supplies carried over from one year into the next harvesting period, the amount likely to be available from the new crop, as well as the best information available about demand. This naturally took into consideration the demand for any crop based on the consumer's need and his ability to buy. Of great value was the foreign situation. This included the quantities likely to be exported to foreign countries and also the amount of competing crops likely to be produced in other countries both for their home consumption and for export in competition with ours. In a large degree these facts had to be based on estimates, but the estimates were in turn based on a great amount of personal work both of an office research character and also by men in the field including the men of the Bureau in foreign countries. This work was a bold undertaking and

brought criticism on the Bureau. But it was basically sound work and pointed the way for a balanced intelligent farm production program. Here, however, is where politics became a problem. If the Bureau indicated in their reports that prices were likely to rise it was fine. Everybody from the farmer to the politician enjoyed these reports. But let the Bureau point out very guardedly even that prices in the future might be lower and if the Bureau was correct, as it frequently was, and prices did fall, then the politicians began to ring our telephone bells. Naturally it was a great compliment to the Bureau that merely by our saying that prices might drop that it results in lower prices. We at least must have been wise. If prices went up we never heard about that but of course the inference would be that we knew what was going to happen and put prices up.

Well do I remember a three-month Senate investigation that followed one of our statements that cotton prices would likely be lower. For us, personally, it was unfortunate that we were right. The Southern Senators and Representatives were plenty hot on our trail, and our one big consolation was that the committee was never quite sure whether our forecast lowered prices or whether Will Clayton—now so large a factor in our State Department—did it by rigging the futures market. But I expect that if you are interested enough to read through the two or three great volumes resulting from this investigation you must decide that we did the evil job. For as I remember it, Clayton came out whole but the Bureau suffered the humiliation of having an important sentence added to its appropriation bill stating that “none of this money can be used to indicate price trends in cotton.” As far as I know this language still remains the same in each annual appropriation act.

With one more subject these early days of the Bureau must come to a close. With H. C. Taylor presiding today and with Asher Hobson, President, we must mention the foreign work of the Bureau and this includes not only the regular foreign offices of the Bureau but also the International Institute of Agriculture at Rome, to which both Dr. Taylor and Hobson later became the U. S. Representatives.

Under the rapid growth of the Department of Commerce under Herbert Hoover as Secretary, an attempt was made to transfer the foreign work in agriculture from the Department of Agriculture to the Department of Commerce. The elder Wallace and Dr. Taylor fought hard to retain this in agriculture. They succeeded. If one

fully understood the work of these foreign offices and knew how closely they were in line with the other work in the Bureau of Agricultural Economics, it would have been obvious that these offices should have remained a part of the Bureau. The fight to retain them was worthwhile even counting the casualties caused by the controversy.

I should like to mention many fine men and women who gave splendid service and most loyal support during these early days. Men like Schoenfeld who was in charge under Taylor of research work, Olson who was my lieutenant in the research field and who succeeded me as Chief of the Bureau—both well trained and strong men to aid in the early years of the Bureau's work. Leaders also like Wells A. Sherman and administrators like Kitchen who was then and has always been "tops" in administrative work. To attempt to mention many, however, is beyond the time allotted. It was a fine group of men and women. We worked in perfect harmony. We had a big job to do and we have never apologized for the work we did. Really, we were rather proud of it.

THE BUREAU OF AGRICULTURAL ECONOMICS— THE YEARS IN BETWEEN*

JOHN D. BLACK
Harvard University

THREE men were chief of the Bureau of Agricultural Economics in the years reviewed in this paper: Nils A. Olsen, from 1928 to May 1935; A. G. Black, from then until October 1938; and Howard R. Tolley, from then until May 1946. Olsen had been Assistant Chief before his appointment as Chief. Black had been Administrator of the Corn and Hog Section of the AAA from 1933 to 1935; and Tolley had been Assistant Chief of the Bureau from 1928 to 1930, then Director of the Giannini Foundation of the University of California until 1934, then head of a program planning section of the AAA, then its Assistant Administrator and finally Administrator in 1936.

An obvious temptation in referring to the years before 1928 which Mr. Tenny has covered in his paper is to refer to them as the "formative" years of the BAE. But it is equally obvious that a mighty lot of reshaping took place in the 18 years following which are covered in this paper. No doubt the reshaping will continue for some time still; but this is for the present Chief to prognose in the third number on this program.

How great the reshaping from 1928 to 1946 can be judged from the fact that the part of the work of the BAE to which Mr. Tenny devotes the most of his attention, and which employed the major portion of his energies, especially before 1926, the regulatory and service work in marketing, was removed completely from the Bureau in the 1938 reorganization. Also at the same time the foreign work to which Mr. Tenny devotes another section of his report was removed, becoming the separate Office of Foreign Agricultural Relations, but with its foreign representatives transferred to the Department of State. Even the Division of Crop and Livestock Estimates was removed at this time, only to be brought back later under the glorified name of Division of Agricultural Statistics. At the time these three divisions were being lopped off in 1938, there was imposed on the Bureau in their stead a large planning, coordinating, and policy-making function. But this began to

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be whittled off in 1942, and in 1946 was removed altogether. A stranger by this time may be inclined to ask: What can there still be left in the Bureau? If this paper does not leave the impression of a large and important role for the Bureau in the future, then it will have failed of its objectives to provide a landscape for Mr. Wells' "Horizon."

Very little will be said in this paper about the regulatory and service work in marketing. Mr. Tenny has told about its origin and development both before and after the BAE was organized. As he has indicated, in many ways these activities were the essential core of the early developments in the economic work of the Department of Agriculture. It was around these that the economic work largely grew before 1920, and in lesser measure in the 20's. With these, the economic work had a public appeal which otherwise it would have lacked. The costs of marketing were strongly associated in the public mind with the high cost of living agitation in the Roosevelt and Taft years; and it was this agitation that caused Wilson and Houston to organize the Bureau of Markets. But with the collapse of prices and land values in 1920-21, the public became vitally interested in economics in broader terms of reference, and the new Bureau was able to widen its scope considerably.

The marketing regulatory and service work kept on expanding after 1928. In this expansion, it pretty much followed the lines so well developed in the period Mr. Tenny has covered. Dr. Taylor, Mr. Tenny, Mr. Sherman and the group who worked on grades and standards, inspection, warehousing, price quoting, and market news in these years developed most of the techniques still in use. Progress since has mostly consisted of taking advantage of new developments in communication and new scientific techniques. Within another year or two, the technique of communication may be developed to the point that market news can be transmitted in any volume desired almost instantaneously over the whole world. This will create the need for worldwide grades and standards and market inspection.

This writer is much of the opinion that all this regulatory and service work now belongs outside the Bureau administratively. But he is equally strong in his belief that it needed very much to be in the Bureau in its early years. At this stage, it needed the kind of an integration which economists only could provide. The Henry C. Wallace who came to Washington in 1921 as Secretary of Agricul-

ture had an unusual comprehension of the fact that the maladjustments of the then postwar years were economic in character. He called upon his Bureau of Markets and his Office of Farm Management for economic facts and explanations, but he did not get what he wanted. Asher Hobson no doubt recalls how he was called to Washington hurriedly to get together some data on marketing spreads and margins. The writer spent two months in the BAE in the summer of 1921, and another five months in the summer of 1922, and sat in many of the weekly staff conferences. The lack of economic sensibility displayed by the marketing men who had been brought in by Charles Brand was astounding at times. They had been chosen because they knew cotton or wheat or potatoes or oranges, and not because they knew markets and marketing. Livingston, chosen to succeed Brand, was an agronomist, and very shortly found himself at odds with the new Secretary. Mr. Tenny has mentioned the resentment of Brand's marketing men at being placed under the direction of economists; but they required such direction in these formative years if their programs were going to fit into the economy, and before long most of them came to recognize this.

It perhaps needs to be added that although these activities now belong outside the Bureau, this does not mean that the Bureau has no concern with them. If such regulation and services are to improve, they must be analyzed constantly. The publications of the BAE from 1922 to 1938 contain frequent reports of studies designed to improve market grades and standards, inspection and market news. An administrative group separated from the BAE may carry on the research needed to improve these services, but it may also become almost wholly absorbed in their routines.

Similarly, this paper will devote little space to the crop and livestock estimating. It surely belongs in the same administrative unit with the other data-collecting and analyzing work of the BAE. It continued to improve after 1928, but most important of all, it was able after 1933 to break out of its routine and render large service to the AAA and other branches of the Department. But it has before it still greater avenues for growth. The renaming of it as the Division of Agricultural Statistics was highly important. It is a fair statement that up to 1930, the crop and livestock estimating of the Bureau kept pretty well abreast of the new developments in statistical science. This can scarcely be said of it since. We need an

integration of the activities of this Division and of the Census Bureau around the techniques of modern sampling that will eventually largely revise the present methodology of both units. Once this methodology is developed, we shall be able to obtain a coverage of current developments in production, land use, tenure, rural housing, and family living comparable to those which were long ago developed in marketing and prices. Probably one needs to add that under production in the foregoing list is here meant something much more comprehensive than reporting acreages, crop conditions and yields.

It needs to be strongly emphasized at this point that the kind of reporting and summarizing of reports that constitutes the bulk of the old-line types of crop and livestock estimating can also have a highly routinizing effect on the section chiefs of such a Division as well as can the regulatory and marketing services, and that this needs to be guarded against all the while. It tends to develop the kind of mental habituation that has come to be referred to as "the crop-reporter mind." To the well-habituated crop-reporter mind, a state average is a state average whether or not it has any value or meaning or possible use. If agricultural statistics are to serve their high purpose, they must be in such form as to furnish the materials for one of the most important types of economic research, namely, analysis of current economic developments. They must therefore be in terms that economists can use in such analysis. They must therefore also provide data in form so that public agencies and private firms can use them in the conduct of their affairs.

Probably as good an example of the monstrosity that the crop-reporter mind can create is to be found in the field of farm labor. If information on the need for and supply of farm labor is to be of use to employers and to employment offices, it must be assembled by local markets and for particular operations in particular weeks on particular crops or livestock. It is now being collected in that form on the Pacific Coast, but not by the BAE. What the crop and livestock estimating service reported, until stopped by the Bureau of the Budget's statistical office, was state averages by months of the percentage of normal supply and percentage of normal demand. Any real economist would of course have known that these were two ways of asking the same question. And they so proved to be except for very abnormal situations and vagaries in reporting. That some of the crop reporters would still resurrect this series if they

could be evident from a recent article in the *Journal of the American Statistical Association*.

Possibly the foregoing remarks will be misunderstood unless it is specifically restated that they apply only to crop and livestock and similar estimating and not to many of the activities now carried on in the offices of the state statisticians, such as, for example, here in the state of Wisconsin. Some of these offices also perform in a measure functions even like those described below under "A, analysis of current economic change," performed on the federal level in the research divisions of the BAE.

The phases of the BAE programs of the 1928-46 years to which the rest of this paper is mainly devoted are, A: The analysis of current economic developments, already referred to; B: The policy function; and C: The planning function.

A. Analysis of Current Economic Developments

It is one thing merely to collect data of current change and assemble it census-fashion in tables; it is another to combine these data with those of other years and areas, and with data on related circumstances, and arrive at conclusions as to what is really happening and the reasons for it. Both are often called research. A better statement is that the first is necessary only as a basis for research. The second can be research of the highest order. The Bureau has done a vast amount of this kind of research since 1928. Some there are who look at this kind of research carelessly or refer to it contemptuously as counting sheep or foxholes, not discovering the excellent analysis that may accompany it. The Bureau itself has been somewhat responsible for this misjudgment of its work. Too often in its annual reports and presentation to budget officers has it referred to such activity merely as "fact finding," or as "collecting and disseminating economic information." When it has gone beyond this, it has used the phrase "interpreting the data," which suggests to some persons the notion of reading of one's biases into them. Let us, then, be absolutely clear on this point, that a thorough and objective analysis of the data of current change can be the highest order of economic research.

The question then follows: How fully has the Bureau over the years availed itself of the opportunities to analyze the data of current change which it has assembled? The answer is: Only in a small way at first, but increasingly from year to year. Such analysis

really began about the time that agricultural index numbers began to be constructed. The studies begun in the 20's of factors affecting prices of farm products and the attempts to forecast price movements were milestones of progress. The launching of the outlook program in 1923 was another milestone. The developing of the outlook program from then until the middle 30's called for better and better analysis of the current data. But even before 1930, the Bureau had passed beyond the stage of being satisfied with an annual inventory and projection and had begun to make periodic reviews and projections during the year. Today, the annual outlook analysis and report is only a minor part of the whole undertaking. The great burden of the task is the preparation of the series of periodic commodity and other situation reports. Perhaps not all of us realize that these have largely replaced the annual outlook reports.

In the war years, this type of analysis took on a new form, namely, determining production goals. The BAE, with Sherman Johnson in immediate charge, worked out the goals the first year, and developed the methods and procedures since followed in the main. This activity may well be continued indefinitely and be greatly improved as we employ sampling methods to give us better and more complete production data.

Some of you may also have gained the impression that price analysis and forecasting—like that for cotton and hogs which raised such a rumpus around 1927 to 1930—is likewise only history. The truth more nearly is instead that as more knowledge of prices and marketing was gained, and more data were assembled, the simpler naive analysis of the 20's came to be replaced by fuller and more realistic analyses of the sort that give the conclusions appearing in the present situation reports.

In these few paragraphs, I have dealt hastily with what is by all odds the major function of the BAE. Probably four-fifths of the actual budget of the BAE will be devoted to collecting and analyzing the data of current change. No other thing is half so important for the Bureau as successfully integrating the collection and the analysis of such data. This section of this paper can be properly concluded with the dedicatory statement from the writer's book *Food Enough*, published in 1943.

This book is dedicated to a company of working economists—especially in the Bureau of Agricultural Economics, without whose untiring services

to the nation it could never have been written. They make the reckonings and plot the course from month to month of every flow and current in the restless stream of agriculture. Without their charts, the administrators would be no more able to navigate than a mariner with a compass but no readings of latitude or longitude. Without their readings and their projections, no one who talks and writes about agriculture could safely venture much beyond the first meridian.

B. The Policy Function of the BAE

No argument is needed that any decisions on matters of public policy and program are dominantly economic in content and that much of the rest of the content is political. It therefore follows that the Bureau must have a large part to play in such decisions. The Bureau functioned in this role very easily, directly, and informally when Henry C. Wallace was Secretary of Agriculture and Henry C. Taylor was Chief of the Bureau. It did not function in this way readily when Jardine was Secretary of Agriculture, nor when Hyde was Secretary. With the arrival of Henry A. Wallace on the scene and the appointment of A. G. Black as Chief of the Bureau, the informal functioning of the Wallace-Taylor period was resumed. This informal arrangement was made formal, superficially at least, in Secretary Wallace's memorandum of October 6, 1938. From then on until Wickard became Secretary, the Bureau and the Secretary's Office went through a good many of the motions at least of joint decision on matters of policy and program. Of course, the Secretary had final responsibility for all the decisions, but in most cases he approved what was recommended by his Agricultural Program Board, and the Program Board approved in the main what had been proposed first by an interbureau coordinating subcommittee set up by the Bureau. With Wickard's ascension to the Secretaryship, the connection became increasingly tenuous. Secretary Wickard was largely unable to use any kind of policy-making machinery. Meetings of the Program Board came to be useless. Wickard came to fear a meeting of the Board, even a memorandum from the BAE. The buddies whom he brought in from the AAA did not help the situation any. The action which in effect pushed the Bureau largely out of wartime policy and program making on the local level was Wickard's setting up the county defense and war boards under the AAA rather than under the county planning committees.

No doubt most of those present are familiar with relevant analy-

sis in Gaus and Wolcott's *The Administration of the Department of Agriculture*. These two men concluded that the Department very much needs a "general staff" to assist it in its policy and program decisions, and that the Bureau should be that general staff. In fact, they presented the formal arrangements set up in October 1938 as the end-result of an evolution that began back in Houston's Secretaryship when he attached the Office of Farm Management directly to his Office, that grew apace under Henry C. Wallace, and matured under Henry A. Wallace. The writer recalls a visit of Gaus to Harvard, while he was working on his study of the Department, at which he presented the foregoing thesis to a faculty seminar in the School of Public Administration. The writer also remembers taking vigorous exception to this thesis on that occasion and in particular stating that he doubted whether the Bureau would really be allowed to function as the Department's general staff; that even though the final coordination in program-making was largely an economic and political process, the other bureaus and agencies in the Department, particularly the so-called action agencies, were not ready to admit this and to accept the Bureau in such a coordinating role; and that it would also meet objections from the farm organizations and the state extension services. His anticipations have clearly proved to have been well founded.

No one can say that Tolley and his central coordinating staff did not try hard to perform in the role outlined. If any one doubts, let him read the 1939 and 1940 annual reports of the Chief of the Bureau. If fault there was, it was more likely on the side of too great pressure to get the coordinating process in full operation. The revisions in thinking and in ways of doing things that the new setup called for were truly large. One could not expect these revisions to be made in a few months. Instead, strong leadership, supported by firm pressure from the Secretary's Office, would be needed over a period of five to ten years. If Tolley was importunate, let us recall that he had just come from the administering of a very large action agency that made annual programs and then saw that they were carried out, with the help of penalties for non-compliance; and that he did not ask for this assignment and was not even consulted with respect to it—in fact, had no intimation of it until it descended upon him out of the sky on the morning of October 6.

Tolley of course also had doubts as to whether Wallace would really support such an undertaking; and decided to test this out

early before it was too late. Wallace gave as good support as could be expected perhaps the first year. Rarely after that did he bring as much pressure as needed on his Washington agency and bureau heads to get them to carry out into the field the decisions reached at the Program Board sessions. Then as opposition developed, he relaxed his pressure still more. Still, it is possible that if Wallace had remained Secretary of Agriculture and had continued such support as he gave in 1939 and 1940, and the war had not intervened, the role assigned to the Bureau would have been increasingly realized over the next ten years. That the state and county extension services were very definitely swinging into step was evident to the writer in his hundreds of interviews with workers in the different federal and state agencies while conducting his field studies in January-September 1941. The strongest opposition was from the local state and regional staffs of the Soil Conservation Service and its districts, many of which had come to look upon the county planning committees as rivals of the soil conservation districts. This situation was surely something that the Secretary of Agriculture needed to adjust.

Even though the policy-making and coordinating task assigned the Bureau in 1938 was one that needed to be performed, and the Bureau would in time have encompassed it with proper support, the question still remains as to whether the Bureau should have this assignment. It is, and has been from the start, the writer's firm judgment that the Department of Agriculture needs a strong general staff, *but that the Bureau should not be that general staff*. He supported Tolley and his Bureau in every way he could once the assignment had been made, but he always believed that the assignment should never have been made.

The compelling and sufficient reason that the Bureau should not be the general staff of the Department is *that it cannot safely mix this function with that of collecting and analyzing the data of current change, and with the other research which it very much needs to do*. We must therefore have a Bureau solely for these latter functions. The general staff should be attached directly to the Secretary.

Does this mean that the Bureau should be isolated from the Secretary's Office and from policy making? By no means. It should follow policy and program matters as closely as possible. It should assemble all pertinent data and information bearing on policy and analyze them as closely as possible. It should assemble all possible

economic data as to how the different programs of the Department are working out, and weigh and evaluate them. It should even go so far as to predict in detail how alternative program proposals will work out. *But it should not undertake to choose policy, nor even to say what will be the best policy.* This latter is a function of the Secretary.

It follows from the foregoing that the Bureau and the general staff must work together at all times, the Bureau frequently making analyses and preparing reports on special assignments, but not restricting itself to these. How much the Bureau will need to do will depend in large part upon the size and strength of the general staff. Never yet has it been adequately manned to handle its tasks.

You may inquire at this point as to how in fact the Bureau has worked with such a general staff as the Department has had. The answer is pretty much as just outlined, but in a relatively restricted way, especially from 1928 to 1935. In the years while A. G. Black was Chief of the Bureau, a large fraction of its energies was devoted to assembling and analyzing the data needed to enable the Secretary's Office and the AAA to carry on. The Bureau, for example, did a large part of the work of figuring out the AAA quotas. It provided information needed for drought relief and all the other emergency undertakings. It assisted similarly in the development of the production goals in the early years of the war, and in connection with the price support program of the AAA and ceiling program of OPA.

Final reference under this head needs to be made to the postwar planning analysis undertaken by the Bureau from 1943 on. Obviously this was a highly proper assignment of the Bureau. But it must be added that the Bureau's planners over-reached themselves somewhat in spots in their series in *What Peace Can Mean to the American Farmer* and went so far as to take a definite position on price-support levels and other matters. This is probably equally true of their "reconversion program for the Cotton South." An objective analysis of all possible alternatives would have been entirely in order; but not an analysis *which appeared to leave the country with only one feasible or sensible course of action.*

This statement on policy-making and the BAE follows a different line than that of Dr. Charles Hardin in his article on the BAE. But it does not clash with it. Hardin's analysis is highly pertinent. Hardin is right that if the BAE had taken a position in 1944-46 on price supports and other matters that was highly acceptable to the dominant political and agricultural leadership, it would not have

run afoul of this leadership. But this writer insists that it would have been equally severely attacked by other groups. The point here being made is that the BAE must analyze problems so that it can properly be attacked by neither. Its objectives in analysis must be to bring out all aspects of a policy question and put these in logical relationship. *If it does not yet know how to do this, then it must learn how.*

C. The Planning Function

The issues raised by the reorganization of 1938 go beyond the simple matter of policy-making that has been emphasized in the preceding sections. The Bureau was at the same time given the assignment of developing a program of planning on the local as well as the national level. This is clearly stated in the following paragraph from the Secretary's memorandum of October 6, 1938.

It is imperative that we establish over-all planning work for the whole Department in order to provide for proper functioning of the many new activities authorized in recent years by the Congress. . . . This has become all the more necessary since the Department last July entered into a significant and far-reaching agreement with the Land-Grant College Association. Under this agreement, the colleges and the Department are establishing democratic procedures that will give farm people an effective voice in forming, correlating, and localizing public agricultural programs. Farm people and official agencies in the States are now forming community, county, and State groups to carry on land-use planning and program building. In the expanded Bureau of Agricultural Economics, the Department is now establishing its part of the machinery needed to integrate State and local planning and program-forming activities within the Department.

The agreement with the Land-Grant College Association referred to is of course the Mt. Weather Agreement. This had been developed in 1937-38 under the Department leadership of Milton Eisenhower working with the policy committee of the Land-Grant Association. It was conceived as a means by which activities of the federal action agencies and the agricultural extension service would be integrated at the local level and thence on up to the top. The county was to be the key unit in the undertaking. The work in any county was undertaken in three stages, described as follows in the 1939 report of the Chief:

Three major lines of planning work in the counties are known as preparatory work, intensive planning work, and unified county programs.

Preparatory work, designed to acquaint county agents and local planning committees with the scope and objectives of land use planning and to prepare them to engage in this work, has been inaugurated in about 830 counties. Intensive planning work, involving area mapping and classification and the formulation of immediate and long-time land-use plans and adjustment goals for the county, was undertaken in 447 counties representing the major type-of-farming areas in each State. Forty-four counties in 39 States have been selected, and 2 other States have tentatively selected counties for the development of unified county programs. The remaining States are in the process of selecting unified-program counties. Unified country program development involves the translating of land use plans into action. It involves coordination and revision of existing departmental, State, and local programs, and the formulation of new programs to best achieve recommended adjustments in land use and rural institutions.

A year later the Chief of the Bureau was able to report that county planning was at the *unified* stage in 61 counties, at the *intensive* stage in 544 counties, and at the *preparatory* state in 933 counties. In addition, state land-use planning committees had been set up in 46 States. The objectives of the program could be even more clearly stated at this time under four heads:

- “(1) More effective and economical ways of adapting public agricultural programs to diverse local conditions within States, counties, and local areas;
- “(2) Better coordination of the several Department action programs as they are carried out in the field;
- “(3) Clarifying the working relationships of the Department and Land-Grant colleges in light of the new responsibilities placed upon the Secretary of Agriculture for the administration of action programs;
- “(4) Attacking the farm problem on all fronts simultaneously.”

By 1940, it is clear from the 1941 report, these county planning committees, now set up in 1900 counties, had begun to turn their attention from the foregoing objectives to “the immediate problems raised in their particular localities by the defense program.” One of the activities commonly undertaken was mobilizing the farm labor resources, a county farm labor subcommittee being set up for this purpose. The report of this year is almost wholly devoted to the Bureau’s part in the national defense program; and the 1942 report fails even to mention county planning.

An inquiry conducted by the writer a year ago indicated that the county planning organizations had completely disappeared in some of the States and in others had functioned more or less along with

the county war boards and were still alive but not very active.

But we cannot safely conclude from the foregoing experience that the objectives of county program planning were ill-conceived. The several proposals now before Congress for various forms of reorganization of federal and state activities are clear evidence to the contrary. Instead, the objectives were excellent, but *the mechanism was wrong*. It is the writer's judgment that the major fault with the mechanism was at the top. County program planning should have been initiated in the Federal Office of Agricultural Extension and not in the Bureau. Of course that Office was not then, and never has been equal to such an assignment. But it should be strengthened so that it is. No one thing is needed more than this in our whole governmental setup in agriculture. Given a proper setup of interbureau coordinating committees operating on the federal level, under the wing of the general staff of the Department, and county and state committees sending up plans for integrated action on the local level, these to be reviewed and harmonized with federal action, the basis can be laid for a gradually evolving procedure of integrated action on both local and federal levels. The county and state committees must include representatives of all the federal agencies operating in the territory, and of course the local farm leadership. The Extension Service should take the leadership in setting up the Local program boards, but it should not generally dominate them. What they propose should grow out of full and free discussion of all alternatives. Neither should they be generally dominated by any one, "action agency." The chairman should generally be the best available individual in the county.

Something more effective than the old Program Board is needed at the top. There must be an actual operating unit on the Secretary's staff with authority to carry out the agreed-upon lines of action. An actual operating unit is also needed on the local level. Possibly, for example, the soil conservation district should be renamed something like the "county executive agency," following the British precedent, and given a greatly expanded program of action.

But an even more serious difficulty with the whole undertaking was its very comprehensiveness. It really undertook to do too much all at once. The people in the counties were very far from ready for full-scale comprehensive county-wide planning. They had mostly not reached the stage of planning their own individual farms, forests, recreation areas, marketing enterprises, credit enterprises,

etc., when they were suddenly asked to plan adjustments for a whole county as a unit. The Agricultural Extension Service is now promoting a program of farm planning over the whole country. The farm foresters of the Norris-Doxey program are beginning to reach the forests. Perhaps five years from now, enough of such planning for individual operating units will have been done in many of the counties so that it will be possible to discern the shape of the adjustments needed in different segments of counties, and how best to secure these adjustments. The Agricultural Extension Service will then be ready to take part in a program of program planning on a county-wide basis. It had better begin, like the 1938 one, with land use, and later reach out to include housing, marketing, transportation, health, education, and the like.

The role of the Bureau, and of the economists in the states, with respect to such a program will be to: (1) help develop the techniques, first, of individual unit planning and later of county-wide planning; (2) supply the information and analysis upon which planning and subsequent readjustments must be based; and (3) sit in council with the county, state, and national program boards whenever plans come up for review. The second of these will be a large order. It calls, for example, in the case of farm planning, for full-scale production-economics analysis such as outlined in the most recent textbook on *Farm Management*.¹ It also calls for similar full-scale analysis of market organization, market prices, market outlets and trends in demand and supply.

The remarks just made call to mind that Mr. Tenny's presentation includes nothing of the important developments in the BAE in the early years in the field of farm management except to speak of Dr. Taylor's coming to Washington in 1919 to take over the Office of Farm Management. Secretary Henry C. Wallace was no happier over the farm management work he found in the Department than he was of the marketing work. The writer spent his five months in the BAE in 1922 working mostly on its farm management program. The BAE's program in this field at that time consisted largely of two things: conventional farm business surveys, and cost routes. Secretary Wallace called the writer over to his office the day after he arrived and stated his position on these in no uncertain terms. He stood up and pounded his desk hard as he said that his farm man-

¹ *Farm Management* by J. D. Black, Marion Clawson, C. R. Sayre, and W. W. Wilcox, New York, the Macmillan Company, 1947.

agement staff "must find something better to do than collecting a lot of cost and other figures on some farms in an area here and there or he was not going to keep on asking appropriations for it." When asked what he wanted instead, he said he did not know, but it "must be something that would help a farmer in planning his business," and "above everything else, adjusting it to the constant changes in the outside world."

One of the practical problems confronting the farm management staff was salvaging from the farm survey and cost route data already collected some materials that would meet the Secretary's specifications. The first tangible result of that effort was the Pond-Tapp bulletin on farming in Southwestern Minnesota. Another was the Ezekiel-McNall study of dairy farming in Wisconsin.

The more positive efforts, however, centered around the development of farm budgeting techniques, under the leadership of J. B. Hutson, and the assembling of data that could be used in testing out alternative farm setups as a basis for recommended adjustments to accompany the demand and price pronouncements of the annual Outlook statements. First M. L. Wilson, and later H. R. Tolley, took the lead in these new developments; and in the last 12 years, Sherman Johnson has promoted them with all the resources at his command.

One has to admit that the objectives in farm management stated by the first Secretary Wallace have been somewhat slow in realization. But out of them grew the farm-and-home plans on which the standard rehabilitation loans—over a million of them—of the FSA have been based; later the more careful plans on which the Jones-Bankhead tenant-purchase loans have been based; the planning of the unit-test-demonstration farm plans of the TVA, and in lesser measure the conservation plans of the SCS. And now as the last and most significant of all developments, again under M. L. Wilson's leadership, the undertaking in the Agricultural Extension Service to extend farm-and-home planning into every county in the land. The actual farm planning done by these agencies has in most cases been far from adequate; but it has been in the right direction and needs only to be elaborated.

There are other phases of developments in 1928-46 that could be considered in detail if time allowed. One of these is the setting up of regional offices and then closing them out on orders from Congress. If the Bureau alone had set up regional offices, and not as part of

county planning, probably no question would ever have been raised. The easiest way to get regional offices established is to start with agricultural extension and let the states in a region largely set up their own regional offices. But the time for that is a bit in the future.

Another phase is the broadening out of the field of the Bureau to embrace more of social science. It is unlikely that Congress will see fit, at least for many years, to set up separate Bureaus to handle the political science, sociology, social psychology and anthropology aspects of agriculture. Nevertheless, these have important contributions to make to agriculture if we interpret agriculture *as meaning people as well as crops and livestock*. These subjects therefore need to find at least a temporary home within the Bureau of Agricultural Economics. Much progress was made in this direction after 1933, largely due to the ever-broadening influence of M. L. Wilson. The most conspicuous achievement of this description was the project in opinion or attitude polling conducted by Dr. Rensis Likert. This, and all the other gains in this field, have gone by the board for the time being. Even the sociology work, with which the new ventures were affiliated, has suffered from its contact with them. The largest gap is in the political field, and here about all that was accomplished even at heyday was a broadening of the work in land economics to include more of the institutional.

In conclusion, we must agree that the years under review were indeed strident ones for the Bureau. A lot of experience was had in a short time. Let us hope that we have learned from this experience what are the wrong ways in which to lead off in the direction of progress and carefully avoid them in the future. But let us not despair of progress.

TRENDS IN WORLD FOOD ECONOMY*

ALBERT VITON

International Emergency Food Council

THE decision of the Farm Economics Association to devote to the international picture the entire opening session of its 1947 Conference is, I believe, very significant. I have not traced the Association's programs as far back as World War I; but I find that the first 10 annual meetings after 1930—and you will admit that going back to 1930 represents a great deal of research for a bureaucrat—were devoted exclusively to national agricultural affairs. Land utilization, farm mortgages, the New Deal in agriculture, conservation, the ever normal granary—these were the issues which loomed in American thinking and these were the issues to which the Association's opening sessions were devoted. Since 1940 at least one paper has been presented at every opening session which dealt with world framework in which American agriculture operates. But this is the first time that the whole opening session is devoted to the international scene—and that, I venture to believe, is most significant.

It is symbolic of the change in American political thinking and of the fundamental changes in the American economy, both farming and industrial. The U.S. economy has become more intertwined in the world economy than in the past, and this applies also to the agricultural sector. Cash payments to farmers, including the value of farm products consumed by their families, is estimated to have amounted to 23.8 billion dollars in 1945 and to 27.2 billions in 1946, and exports (excluding military shipments for civilian relief) amounted to 2.3 and 3.1 billions, respectively. The U.S. dairy industry, the rice industry and, above all, of course, our wheat farmers have come to depend on foreign markets to a considerably larger extent than before 1939. Foreign countries took 32 per cent of the greatly increased 1946 rice crop, and about $\frac{1}{3}$ of the phenomenal wheat crops of 1946 and 1947.

The increased world demand for U. S. farm products is a result not alone of war devastation. There are longer range forces at work, which, if given free play, will mean more abundant living for the whole world. The next decade will witness fundamental changes in the world pattern of industrial and agricultural production, and,

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 8, 1947.

therefore, in the pattern of international commerce. Politically the U. S. has assumed world leadership; the question is whether it can do the same in the economic sphere. The interesting thing is that, in part at least, the economic difficulties of the moment and the economic energies and promises of the future are not unconnected with the basic socio-political forces in the world which the U. S. has helped to stimulate.

Unfortunately, I am afraid that the magnitude of the changes in world forces and of the change in the U. S. world position, and their implications for our national economy are not yet fully realized. I venture to believe that the next 10 years will witness a great increase in attention in our agricultural schools not only to such fields as comparative international agriculture and comparative agricultural policies but to the relationship between U. S. agriculture and the general world economic complex, international trade and even to international relations as such.

There is no need to devote much time to the prospects for the current and the coming crop year. American agriculture will have a ready world market for all the grain, rice and fats and oils it can produce. Importing countries will use their last dollars for these commodities even if they should have to curtail drastically their other urgent imports. Since the end of the war supplies of other foods have improved steadily, although slightly, in all European countries except Great Britain; but European and other importing areas will not be able to dispense with U. S. grain, rice and fats and oils during 1948 and probably 1949. The cereals shortage in 1947-48 will be more serious than at any time since the outbreak of War.

Imports of about 32 million tons of bread grains are needed by deficit countries even to maintain the current rations and to allow very slight indispensable improvements in operating stocks. But present estimates place the total exportable supplies of all grains at about 28 million tons—and this total, which, in my opinion, may prove somewhat optimistic, includes about 6 million tons of what used to be called “feed grains.”

Equally critical is the fats and oils outlook. Total world supplies in 1947 are estimated at 10.5 million tons as compared with an average of 12.8 million tons in the prewar years. But these global figures hide the depth of the regional changes that have taken place in production and consumption. Before the war, the annual production of Europe (including the U. K.) of all visible types of

fats and oils amounted to about 4.2 million metric tons, and net imports averaged about 3.7 million tons. In 1947 indigenous production is estimated at 2.6 million and the present allocation allows imports of only 2.5 million tons (including butter). Highly significant for the future is the steep decline in the quantity of fats and oils moving in international trade. While about 5.1 million tons moved in international trade in the prewar years, in 1947 less than 3 million tons will be available for export. Hence the tragic decline in consumption of many European countries. In only a few deficit countries will consumption exceed 75 percent of prewar. Certain it is that for 1948 and probably 1949 there will be sufficient effective demand to absorb—even under financial duress—at remunerative prices all the fats and oils that the American farmer can produce.

Cereals and fats—these are the hard-core of the international food problem, and in cereals I include of course rice. Production of other commodities—of meat, dairy products, sugar, beans and peas—in Europe and Asia is still 10 percent to 20 percent below prewar. The shortage of cereals, which has made it necessary to divert feed grains to human food, and the decline in supplies of protein feed concentrates, have effectively delayed livestock rehabilitation. There is no possibility of regaining prewar level of production of livestock products before 1950, at the earliest. Unfortunately exportable supplies of meat in 1949 will probably be even lower than this year. Any improvement in European meat consumption in 1947-48 will come from forced liquidation of livestock between now and the next harvest—with the inevitable effects on production in the following years. Indeed, one of the great problems of the coming years is how to increase the exportable supplies of high protein feeds. About 8 million tons moved in international trade during the prewar years; it is doubtful whether as much as 2 million tons will be available for importing countries in 1947.

It is less possible, however, to foresee the effect on demand for other agricultural commodities. The demand will certainly be there. The world will be in a poor position to dispense with U. S. cotton, tobacco, dry fruits, dairy products, etc. But it remains to be seen whether the financial arrangements will be made to enable the world to effect the transition from war to the type of economy it is groping for without undue sacrifices in immediate consumption—in brief, whether we will advance the capital to help finance the transition and at the same time begin such reorientation in our

domestic economic policies as to enable the world to repay in future years the capital advances. I believe that the world will work itself out of the present crisis to a higher level of economic activity. The questions are: (a) how deep the sacrifices will have to be during the next few years; (b) how long the period of crisis will have to be; and (c) what will be the relationship with the U. S. during the crisis and afterwards.

However, it is not with the immediate prospects that I want to deal. Rather, my purpose is to evaluate the forces which appear to me to operate today, the effects of which will gradually unfold themselves over the coming years. The specific effects of these forces on the U. S. economy, and in particular on agriculture, will be mentioned later. My thesis is that the world is at the beginning of one of those epochs in the history of man when a new energy appears to enter into his activities, when the pace of evolution is quickened and processes which normally require decades of development are compressed into as many years—and, in contrast to the situation in the third decade of this century, this intensified energy will express itself not only in the industrial field, but in agriculture as well. Modern economic history knows two distinct periods of quickened progress and accelerated growth. One was during the second half of the 18th century; another era of dynamic evolution took place at the turn of this century. My thesis is that we are entering another epoch of accelerated economic activity, when the mills of the gods turn with more speed and to more definite purpose.

To attempt a precise delineation of the circumference and ramifications of the new forces would be folly. But this much precision can be ventured, I believe. First, the rate of increase in the total economic activity of the world will be considerably higher during the coming decade than during the decade before the outbreak of World War II—and that, in spite of the dislocations introduced in Europe by the destruction of Germany and in the Far East by the momentous political changes which are now taking place.

Second, the rate of increase in economic development will be particularly higher than during the base period in countries of the middle stages of industrial development, or below. Finally, industrial development will go hand in hand with efforts to secure expansion of agricultural production, and that a relatively higher

level of agricultural prosperity will be maintained through the higher demand for food and through the withdrawal of labor into non-agricultural occupations.

The first, although perhaps not the most important factor to be considered, is that world population increased by about 10 percent during the past decade, and that rate of increase is continuing. Food production has of course also increased. But not to the same extent. On the contrary, the only significant increases in food production have been on the American continent, and especially in the U. S.; production in Europe and Asia—which account for the bulk of the population increase—has declined. Excluding the U.S.S.R., an increase in production of about 15 percent would be necessary to enable the countries which have suffered a decline in standards of food intake to regain the prewar level, and to allow retention of the wartime gains by those few nations which have been able to improve food consumption standards.

An increase in population need not, of course, mean by itself a higher effective demand for food. In the past, indeed, no correlation existed between growth of population and the effective economic demand for food. But I venture to submit to you that the population factor is of greater significance today than ever before. Profound cultural, ideological and political changes have taken place which give entirely different colors to the traditional economic factors.

There is no need to trace here the origins of the reformation or to evaluate the causes which brought it about. No doubt, various schools of socio-economic thought have been of influence; more telling, perhaps, may have been the impact of the experience of the war, especially since that experience came after the long blighted thirties. But whatever the causes, a new socio-economic philosophy has attained domination in many countries, and this philosophy will shape the economic structures of nations. No field of human endeavor will feel its influence more profoundly than the field of agriculture.

The new economic philosophy can be summarized with one phrase—full employment: that it is the function and responsibility of government, to use the language of the famous British Statement of Policy, to maintain “a high and stable level of employment.” Even today, though beset with immediate problems that flow from insufficient production and insufficient labor, the policy of full em-

ployment colors to an amazing extent the economic thinking and planning of overseas countries. It has become the foundation stone of public finance, of foreign trade policy and of all domestic economic policies. It is very significant that a draft of the I.T.O. charter which the U. S. Department of State submitted to the London Conference ran into extremely heavy weather until the U. S. delegation accepted provisions concerning full employment. The policy of full employment means that a minimum level of economic activity is to be maintained even if it necessitates government direction; and, therefore, a minimum level of nutrition and social welfare. It means then that a floor is placed to consumption, and especially food consumption.

I have dwelt at length on "full employment" because I regard it as the most dramatic symbol of the new economic orientation. But it is only one part of this new philosophy. Family allowance legislature recently enacted in Britain, Canada, and the Antipodes Dominions; extensions of social insurance—all these, and many other manifestations might be mentioned. But these are essentially passive. They merely place a floor on consumption. It would be a grave error, however, to overlook the more dynamic expressions of this ideology. There is a great increase in awareness of the importance of increasing productivity—or rationalizing industry, of making agriculture more efficient, of improving marketing systems. In fact it is the slowness, real or imagined, of private capital to attain these objectives that is driving so many countries to seek salvation through governmental direction, planning and enterprise. In Britain, the chief argument in favor of nationalization of basic industries was not "ideological," as the worthy *Times* would have one believe; but the shameful neglect of private capital to provide the leadership for dynamic increase in productivity per man-hour. In colonial and semi-colonial countries, a very large proportion of the industrial and agricultural expansion projects, launched or planned, is under direct governmental supervision.

One of the most significant features of the new socio-economic orientation—both in its passive and in its dynamic aspects—is that the major beneficiaries are the lowest income groups. This stands in bold contrast to previous experience, especially as far as colonial and semi-colonial countries are concerned. The effect will be that the proportion of the increased income devoted to food will at least keep pace with that devoted to industrial products. No doubt the

proportion will tend to diminish after the incomes of these groups reach a certain level. But that level is still out of sight, and at present the rise in income of the lowest social groups expresses itself in a demand for more and better food.

In part this is due to the enhanced consciousness of the importance of good nutrition. For the first time hundreds of millions of people have become aware of the connection between food and growth, good health, efficiency, and even emotional stability. During the war years, every major government used considerable resources to popularize nutritional ideas; and the effects of the propaganda are becoming increasingly visible.

In this connection the influence of rationing should not be underestimated. We all know that rationing fixes a ceiling on the quantity of the rationed item each one may consume; but it is equally true that rationing also establishes a floor on consumption. Innumerable dietary surveys have demonstrated beyond a shadow of doubt that the establishment of a ration acts, in the overwhelming majority of cases, almost as a social obligation to consume the permitted quantity. In country after country, the lowest income groups—which in the past fared or feasted as chance provided—have learned to expect of society an assured dietary minimum which is considerably higher than that which, on the average, they had before the war.

Most significant of all, these changes are no longer confined to the West. All the cultural, economic and sociological changes which I have mentioned, have penetrated, for the first time, into dark Africa and Asia. Nutrition in Africa, foresooth; Shades of Sir Garnet. But the change has come about, whether we like it or not. Symbolic of the new era was the publication on the eve of the war by His Britannic Majesty's Government of a two-volume report entitled "Nutrition in the Colonial Empire"—an astounding document both by reason of the facts which it revealed and by reason of the new attitude which it symbolized.

As in the West, the introduction of rationing has had profound social effects. For the first time since the Pharaoh who knew Joseph, government has assumed responsibility for feeding hundreds of millions of human beings. Starvation has ceased to be the unalterable fate of tens of millions. In India no less than 175 millions enjoy the protection of rationing; and today a breakdown of the rationing system would be tantamount to a collapse of the whole socio-politi-

cal fabric. One needs only to listen to Indians talk of the Bengal famine to realize the magnitude of the change. Interestingly enough, men who are now at the head of the Indian government have told me that they expect rationing to continue for at least ten years.

It is frequently overlooked that the present acute shortage of cereals and fats and oils is due in part to increased consumption in colonial lands and so-called "backward" territories generally. Production of groundnuts and other oil-bearing plants (for direct food-fat consumption) has not materially declined in India as compared with prewar; but exportable supplies will be in 1947 less than a third of the prewar average. I venture to predict that the Indian government will permit even less exports next year. The same thing has happened in Latin America, in the Near East, in Africa and in Asia. The experience of Mexico is typical. In an average prewar year (1935-38) Mexico was self-sufficient in grain. To be exact: it imported 23,000 tons of wheat and flour per annum and exported 8,500 tons of coarse grains. Now look what has happened. Indigenous production of all cereals was actually higher in 1945 and 1946 than before the war—2,350,000 and 2,830,000 respectively as compared with the prewar annual average of 2,160,000 tons. Yet in 1945-46 Mexico imported 378,000 tons of all cereal, 335,000 tons in 1946-47—and in both years it tried hard to obtain twice the amounts it was allowed to import.

What has happened? The answer is that many things have happened. (A) The peoples of the so-called "backward" countries of the world have become more productive. Industrialization has progressed, and the per capita output of wealth is increasing at a rate unprecedented for those countries. (B) The great masses of peasants and laborers have learned to expect more of life; and among the things which they have most learned to expect more of is food. (C) Governments have assumed obligations towards economic development and social welfare unheard of before the war.

Nor are these changes of an ephemeral nature. Let us have no illusions about the possibility of a return to the status quo ante—which has been translated by a colored preacher to mean "the mess we was in." On the contrary, the governments and peoples of these lands have become conscious of their backwardness, of the vast distances they have to cover, and are attacking their problems with unprecedented determination and vision. Long-range development

planning, embracing both agriculture and industry, has become the order of the day. And let me emphasize that the basis of these plans as far as agriculture is concerned is not production for export to meet the needs of the dominant Western countries—and at very low prices in relation to the volume of man-hours—but production for better living, for better nutrition and for social welfare.

The series of Colonial Development and Welfare Acts enacted by Britain since 1940—and especially the significant Act of 1946—are symbolic of the new activity. Much work to improve agriculture and nutrition has already been done in the West Indies and other territories, although the accomplishments to date pale into insignificance in comparison with the magnitude of the needs. All British colonial territories have been instructed to prepare ten-year development plans, and more than a dozen have already been prepared and approved by the Colonial Office. Similar changes are taking place in other empires. The Netherlands authorities have been at work on very ambitious plans for the East Indies; a Belgian economic development mission left for the Belgian Congo only a few weeks ago, a number of French economic development missions have prepared reports on the French African colonies. As to the governments of these colonial territories which recently attained autonomy, there is no need to point out that each and everyone of these places economic development in the forefront of its activities.

There is one other development, which is world-wide in scope and the full ramifications of which we are not yet in a position even to outline. I will not be surprised if in the future we will come to see in this change a major transformation in our economic—and perhaps even social—values. Whether in the U.S., or Britain, or the European Continent, the greatest percentage increase in wages since 1939 has gone not to the professional, not to the white-collar groups generally, but to coal miners, agricultural laborers, textile workers, and to the other heavy-duty occupations which before the war were the lowest paid. I am aware of course that this is a typical phenomenon of an inflationary period. But I am convinced that due in part to the operation of the forces mentioned previously, the realignment in economic values is more than a temporary circumstance. Within the national economies this change has meant a change in the economic center of gravity in favor of workers by hand; international, the transformation is expressed in a deep change in the “terms of trade” in favor of the countries exporting

food and industrial raw materials—in favor, in other words, of the typical colonial economies.

As far as agriculture is concerned, this change is of enormous importance. High prices in relation to non-food merchandise will probably call forth in the long run an increase in production; but the emphasis must be, due to factors which I need not elaborate here, on the long run. In the meantime more visible will be effects on the demand for food. The gap is enormous, and it will not be filled for many a year.

There is another economic development which I would like to mention, although it has no direct bearing on the main thesis—namely, the increasing tendency of countries to insist on processing their own primary agricultural products. The decline in exportable supplies of high vegetable protein feeds, to cite one example, may be much more significant than is yet generally realized. The same development can be observed in other commodities. If this trend is substantial, and I believe it is, it obviously will spell significant changes in the pattern of international trade in agricultural commodities, and profound changes indeed for many countries.

The crying need of the world always has been for more physical production. But the calls of the last war have spread the know-how, and the demand for the rewards of greater production, into places where they would not have penetrated for decades under peacetime conditions. This *weltgeist* finds expression in both the political and economic spheres. Politically it constitutes the fuel for the many movements for self-government which are bubbling and boiling around the globe.

True, the turmoil which results hinders production and trade for the moment. But, if the Nations can find the way to harness the chain reaction of human creative impulse which had followed from the initial fissions of World War II's cataclysm and direct it to production instead of letting it senselessly dissipate itself in civilization's final catastrophe, a third world war, we can see in the last half of the Twentieth Century a world-wide outsurge of invention and physical production. As far as agriculture is concerned, I am convinced that the demand for food will remain for many years above supply availabilities, although the demand is calling forth and will continue to call forth extraordinary efforts to increase production.

If this conclusion is valid, it means that we must reorient our

thinking. Today we are ridden, consciously or unconsciously, by fears of surpluses, of over-production, of the bottom dropping out of the market. If I may use the language of the psychologist, these phobias are a fixation—a carry-over from the years of the 30's.

However, the world panorama which I have attempted to paint—with rapid and coarse strokes, to be sure—needs refinement. My analysis had proceeded on the assumption that we will have a “one world” economy. But over us hangs the ominous threat that in the future, instead of a “one world economy” we shall dwell—and I am speaking in economic terms, not political—in two or in three worlds. The clearest expression of the economic division is the dollar famine which looms so greatly today. I believe that the forces that I have attempted to outline could still remain valid even if two or three economic universes were to emerge. But their impact on U.S. agriculture would be totally different. In brief, it is by no means impossible that even for the basic commodities—and sooner for other agricultural products—U.S. may labor after the 1949 or 1950 harvest under burdensome surpluses while farmers in other countries enjoy high and profitable prices and are unable to meet the whole of the effective demand.

How to prevent such a calamity is one of the major problems of economic statesmanship. I am convinced that it can be prevented—but I must hasten to add that as yet I see few and very weak signs of realistic efforts to make the necessary adjustments to the potentialities of a rapidly expanding world economy. Loans, relief appropriations, Marshall plans are important and necessary. But, from a long range standpoint, they alone are insufficient unless backed up by the necessary changes in U.S. trading policies—changes in tariffs, quotas, and other trade barriers which will make possible a wider and a freer exchange of goods. Unless so backed up, the loans, the grants, the Marshall plans will only reduce the period of crisis and the amount of belt-tightening foreign countries have to make without solidifying world economic integration. From the standpoint of U.S. agriculture, the loans, Marshall plans alone only postpone the day when a substantial part of its world market disappears, and when it has to make an adjustment to produce more largely than now for the domestic market.

This is not the time to outline the changes in U.S. foreign trade policies which would be necessary to maintain a one-world economy—with or without the U.S.S.R.—and at a high level of production

and employment. The I.T.O. charter will not suffice. The problems are complex and not all can be evaluated as yet. But I believe that, if my analysis of world forces is correct, one of the implications is that the proportion which agricultural commodities would contribute to the total U.S. exports would be higher than was the case during the thirties.

It took Britain five to seven decades to make a similar adjustment in its economy during the 19th century; the tempo of today demands that we accomplish it in as many years a transformation much more worldshaking in its implications. This places an unprecedented challenge to American scholars, who are not burdened with all-absorbing, although not always all-important problems of day-to-day administration. Only after careful study, analysis and thought can there be wise and far-sighted policies and administration. The challenge is a twofold one. It is first of all of research, analysis and thought in the privacy of one's study; it is, secondly, to take the results of the research and thought to the market place.

SIGNIFICANCE OF THE GENEVA TRADE CONFERENCE TO UNITED STATES AGRICULTURE*

JOHN A. HOPKINS
U. S. Foreign Service

SINCE 1914 the governments of the world have shown great ingenuity in inventing and applying new forms of trade restriction, many of which were not even mentioned in economics courses when I was a college student. Under the influence of the economic fear engendered by the Great Depression of the early 1930's, reinforced and complicated by European Totalitarianism, we have seen the development of higher tariffs, export subsidies, countervailing duties, quantitative restrictions and quotas, bilateral agreements, British Empire preferences, foreign exchange restrictions and other barriers, until a large part of the benefit of foreign trade has already been lost. Furthermore, restriction is still increasing about as fast as ever. Under these conditions it would be very strange if the adoption of a handful of trade treaties and the establishment of another international organization would suddenly reverse the whole process and establish that paradise of international *laissez faire* which is so devoutly hoped for by our students of foreign trade. If we can even stop the deterioration, we shall have cause enough to be thankful. Really to liberalize the conditions of trade will still take a long, uphill pull.

In this paper I should like, first, to comment very briefly on the recent development of trade barriers that resulted in calling the Geneva Conference. Second, I will say something about the history and organization of the Conference itself. Third, is the attitude of the nations regarding reductions in their import duties. And fourth, I should like to comment on the Charter of the International Trade Organization. No one of these subjects could be dealt with adequately in the few minutes available here. The purpose is, rather, to sketch the general picture in broad strokes and to stimulate further discussion.

Recent Growth of Trade Barriers in Agriculture

Why has there been such a great increase in trade barriers during the past two or three decades?

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The first influence causing the erection of such barriers has been the underlying spirit of protectionism, which we generally find among farmers as well as most other groups of producers. Second, is the wide fluctuation in business activity and prices since 1914. Especially important was the depression of the early 1930's. Third were the foreign exchange difficulties in which many nations found themselves from time to time since World War I. Fourth, we should mention political uncertainty and the resulting urge to self-sufficiency as a military measure. Of course, this classification is not altogether satisfactory. These groups of influence are more or less related to each other. And there are minor or less common influences that have not been mentioned. Nevertheless, I think that most of the imposed restrictions can be traced to one of these four factors.

The propensity to protectionism is ages old and world wide. It is a commonplace observation that entrepreneurs try to avoid *competition*, especially competition from abroad, if it is possible for them to do so. Of course, virtually everyone favors the removal of trade barriers as a general principle. But there is nearly always an exception—the article which the particular farmer or manufacturer is selling. Few producers can view with pleasure the prospect of adjusting their enterprise to a new price structure, especially if this involves lower values of some of their important products. Foreign competition appears particularly dangerous and menacing. This is all the more true because very few producers are acquainted either with foreign price structures or with the conditions and costs of production in other countries.

Opposing this tendency to protectionism are the desires of some groups of producers to get cheaper raw materials, and of consumers to obtain supplies at lowest possible prices. Consumers' demands, however, are widely diffused and no ordinary consumer buys very much of any one commodity. On the other hand, producers groups are often strongly organized and work persistently and effectively to obtain higher prices and higher incomes.

At the end of World War I, and again during the depression of the early 1930's, the general propensity to protectionism received strong psychological reinforcement from sharp declines in prices. It is true that the depressions of these years have seldom been attributed to any flood of imports. Nevertheless, high tariff protection was one of the principal measures advocated as a remedy for falling prices by farmers and by politicians both here and

abroad. Consequently, there were sweeping tariff increases as in the Fordney-McCumber Act of 1922 and the Smoot-Hawley Tariff Act of 1930. Similar increases occurred in many, probably in a majority of other countries, at about the same times. These boosts in duties, however, did not stop with the depressions, but have continued to the present day.

The depression of the 1930's had other consequences, as well as higher tariffs. Since it made producers in free enterprise countries fearful for their economic security, many governments sought more positive means than tariffs to prevent foreign competition. Thus, import quotas or licensing systems were adopted in several of the European countries, as in France, Germany, Italy, and Czechoslovakia. Various types of subsidies or price supporting measures were applied in most of the same countries to insure producers' income. Out of 22 leading nations examined in a recent study by the Office of Foreign Agricultural Relations, thirteen had some form of import quotas or licensing by the outbreak of World War II. A fourteenth joined the ranks in 1940.

The most serious blow to expansion of United States trade came from British Imperial preferences. Under the Ottawa agreement of 1932, England and its Dominions granted each other lower tariff rates than those charged against other countries. The intention was to stimulate trade within the Commonwealth and to bind together the Dominions and the mother country. The same arrangements, however, placed the United States, as well as other non-Empire countries, at a serious disadvantage in dealing with those in the agreement.

Many other discriminatory, bilateral trade or clearing agreements were also made during the depression and the years immediately following. Frequently, blocked currencies were employed for definite amounts of specified commodities. During the late 1930's Germany made agreements of this type with most of its neighbors and with several countries in Latin America.

In many of the agricultural exporting countries various systems of export subsidies were adopted. Dairy products exported from Australia and New Zealand, fruits exported from Australia, grains exported from Australia and Argentina, are illustrations. In many cases domestic prices were maintained at levels above the world price. The resulting double, or rather multiple, price levels for the same commodity frequently provoked retaliation, complicating and

exacerbating a world trade situation that was already bad enough.

Foreign exchange difficulties comprise a third source of restriction, as mentioned a couple of pages back. During the early 1930's many countries adopted discriminatory use of scarce foreign exchange, conserving it and doling it out for those purposes considered most essential. As an example, Argentina developed a system with five different rates. One was the open market rate. In addition, there was a relatively favorable and an unfavorable rate, each, for buying and for selling the dollar or other exchange. The Central Bank sold foreign exchange at a favorably low rate, in terms of pesos, if it were to be used for importing machinery, raw materials, or other "essentials," while discouraging "non-essential" imports through an unfavorable rate. On the opposite side, foreign exchange was purchased at a favorably high rate in terms of pesos from those exporting industries which the government wished to encourage, while a lower rate was paid for dollars or pounds obtained by exports which the government wished to discourage. Argentina is used merely as an example. Many other countries did essentially the same thing.

The important thing to note is that the depression-born device of exchange control was soon modified into a tool for domestic intervention in planned economies, incidentally with further impediment to international trade. By the outbreak of World War II, foreign exchange was under close and discriminating government control in a majority both of the European and of the leading Latin American nations. By the end of the war, the controls had been made much tighter and were being used by virtually every country in the world.

The current exhaustion of foreign buying power by several key nations (the so-called "dollar scarcity") implies that this form of restriction will continue for at least a few years.

The fourth source of trade barriers mentioned above was the political or military urge to national self-sufficiency. In this connection, we think of the "Battle of Wheat" in Italy, beginning in 1925, and of the strenuous efforts of Germany and of France to increase their grain production in the face of relatively high cost conditions.

Before 1939 efforts to attain self-sufficiency were made chiefly in Europe as measures for military safety. After the outbreak of war and the interruption of shipping, however, the alleged need for self-sufficiency was advanced pretty much all over the world, first

as an argument to justify subsidies and various other devices to stimulate home production. Later on, the same arguments were frequently used to keep out competing foreign supplies for protectionist purposes. Often efforts to attain self-sufficiency are considered to be "independent" of others. A responsible official of a Latin American government told me, quite seriously, that the chief agricultural foreign trade objective of his country is to become completely self-sufficient in production of each and every food product it consumes.

With the outbreak of war in 1939 all governments, including that of the United States, increased their control over agricultural production. Subsidies or guaranteed prices to producers, import and export quotas and licensing systems, foreign exchange control, and state trading were applied almost universally in addition to import duties.

We shall have occasion to refer to state trading again later on. It was, of course, a relatively old device. Since the revolution of 1917 it had been used for all of the foreign trade of Russia. Also, there have been many national tobacco monopolies, salt monopolies, and so on. Many new government trading agencies were set up during the depression of the 1930's, and still more were established to obtain supplies of critical materials during the recent war.

As a few illustrations of such agencies, we may mention our own Commodity Credit Corporation, Rubber Reserve and similar war-time agencies, and the U. S. Commercial Corporation. In Brazil there were a number of agricultural "defense" organizations which were authorized to deal in coffee, cacao, yerba mate, sugar, rice, meat, and tobacco. In Argentina there was a Grain Board and a Meat Board during and since the depression, and there is the present Trade Promotion Institute. In Canada and in Australia there were wheat pools. In New Zealand and South Africa, there have been various governmental agencies charged with supervising agricultural exports, sometimes with guaranteed prices. In Mexico and Colombia there are national agencies to purchase and distribute essential imported commodities. Most European countries have various governmental monopolies or agencies to purchase and distribute imported supplies. The Norwegian Grain Monopoly was intended to import needed supplies, but at the same time to buy from domestic producers at prices which were sometimes above

the world market. In Argentina, on the other hand, the Trade Promotion Institute buys grain from producers at low prices, sells abroad at the full world price, but sells to local consumers at prices even lower than those paid to producers.

In various countries these state trading agencies have powers to buy from producers at relatively high prices and sell abroad at lower market prices, to destroy surplus coffee, to levy export taxes in order to obtain operating funds, to loan funds to producers, to set quotas for production and for export, to operate processing plants, and so on.

It should be noted, again, that these agencies are all instruments for implementing national policies—tools of planned economies. But wherever they intervene in international commodities, they remove another “degree of freedom” from world trade.

By the end of the war international trade was virtually in a strait jacket. Although many wartime restrictions have now been revoked, the devices just mentioned are still in use in many countries and will be hard to get rid of. This is all the more true because so many of them lend themselves so readily to use as tools of protectionism.

When agricultural surpluses again appear, we may expect producers in a great majority of countries to demand that their governments raise tariffs still further, grant them continued subsidies, utilize exchange control a little longer as a means of excluding competing imports, conclude new bilateral agreements in order to open up or to retain markets, and continue to engage in state trading when that promises to obtain larger returns. It was the purpose of the Geneva Conference to try to avert this spreading paralysis, and if possible, to turn the remaining free enterprise nations back toward unrestricted private trading. This is clearly essential if the world is to obtain anything like the full benefit of international comparative advantage.

Organization of the Conference

In February 1946 the United Nations Economic and Social Council resolved to call an International Conference on Trade and Employment to promote production, exchange, and consumption of goods. This Conference, according to present plans, will be held in Havana in late November of this year. A Preparatory Committee consisting of 19 nations was appointed to work up an agenda for the Conference and to prepare a draft-charter for an International

Trade Organization to promote these objectives. This was done at a meeting of the Committee in London in October and November 1946. The latter was revised by a Drafting Committee, which met in New York in January and February 1947. Later, it was presented to the second session of the Preparatory Committee, which began in Geneva on April 10, 1947.

In addition to work on the draft charter, it was decided to hold negotiations, also at Geneva, in order to conclude a multilateral trade agreement among the members of the Preparatory Committee. The trade agreement negotiations were intended to constitute a positive step toward the lowering of tariffs of the principal trading nations and the removal of some other trade barriers with the least possible delay, even in advance of the operation of the International Trade Organization.

Nations participating in the Conference at Geneva are: Australia, Belgium, Netherlands, Luxembourg, Brazil, Canada, Chile, China, Cuba, Czechoslovakia, France, India, Lebanon and Syria, New Zealand, Norway, Union of South Africa, United States, and United Kingdom. Russia was also a member of the Preparatory Committee, but is not participating in the Conference.

The division of the Conference which is working on the Charter consists of representatives from each country delegation, and is broken down into a series of sub-committees dealing with the various chapters or subject matter headings. The division which is carrying on the trade negotiations is composed of groups of negotiating teams from each country delegation, together with their various advisors. In the United States Delegation there are about ten negotiating teams, some of which deal with more than one country. The entire Delegation consists of representatives of the Departments of State, Commerce, Agriculture, Treasury, Labor, War, the Navy, and the Tariff Commission. The United States Delegation is headed by Will Clayton, Under-Secretary of State for Economic Affairs. The work on the Charter is under the direction of Clair Wilcox, and the trade negotiations are under Winthrop Brown, Chairman of the Trade Agreements Committee.

The trade negotiations consist of two distinct steps. The first stage, now nearing completion at Geneva, consists of bilateral negotiations between pairs of governments, and is closely patterned after the reciprocal trade negotiations which we have been carrying on since passage of the Reciprocal Trade Act of 1934. Second, all

bilateral agreements are to be combined into a single multilateral instrument in which all concessions agreed to between pairs of countries are to be extended to all the other negotiating nations. Still later it is intended that additional nations may likewise negotiate with the Geneva nations, and upon satisfactory conclusion of such negotiations, may receive the benefits of the tariff reductions provided in the multilateral agreement.

In the bilateral discussions each negotiating team requests certain reductions in the import duties of the country with which it is dealing, and in exchange makes tentative offers of reductions in the tariff of the government which it represents. Until the bilateral agreement is concluded, each negotiating team is free to withdraw any offer it has made if it thinks that counteroffers are too far out of balance with the value of concessions that it has proffered.

There are actually 19 states involved. The Belgium, Netherlands, and Luxembourg customs union, however, acts as one unit, and the Lebanon-Syrian customs union acts as another. Thus, there are actually 16 units negotiating. There are 120 possible pairs of bilateral negotiations. But since trade between some of the small and widely separated states is negligible, there are actually slightly under 100 negotiations in progress. Nevertheless, this is the most comprehensive and, incidentally, the most complicated trade negotiation in the history of the world.

It may be useful to review a few of the principal limitations to the United States offers. In the first place, the amount of reduction offered in any negotiation is limited by the Trade Agreements Act to 50 percent of the existing duty, except in a small number of special cases. Second, negotiations are limited to those commodities on which public hearings have been held. Third, the offers made by any negotiating team must previously have been approved by the Trade Agreements Committee and by the President. Thus, there is no chance of the United States Delegation taking the bit in its teeth and, for some perverse reason, suddenly setting out to wreck the tariff structure of the United States.

The Tariff Negotiations

At the time this paper is written it is not known just what reductions in tariff rates will finally result from the Geneva Conference. It is safe to say that in the long run, American agriculture, as well as other industries, is likely to benefit materially from the many

concessions obtained. It is also safe to say that no concessions granted by this country are likely to cause any great losses to American farmers. Among the concessions granted by other countries some will represent relatively large percentages of the present duties paid by our products; others will be relatively small. Some of these concessions will apply on important and others on minor export items. Some will be concessions by countries that constitute large markets, and others by countries that buy relatively little of our farm products. Thus, it will require some little time after the negotiations are concluded before we can fully analyze the full results of the Conference in terms of probable shifts in trade and prices.

Since we are negotiating with 15 other economic units including 18 countries, the total number of concessions given and received directly should be quite large. Further, since all tariff reductions or other benefits agreed to between pairs of countries are to be generalized to all the other countries concluding negotiations in this Conference, we will receive many added concessions indirectly.

Still, I repeat, we should not be overly optimistic. We should not expect a sudden upsurge of foreign trade immediately after the trade agreements are concluded. The basic attitudes and the existing impediments to trade have already been described. These had a pronounced influence throughout the trade discussions. Furthermore, many important trade barriers, such as exchange restrictions, are not under negotiation except insofar as they are related to the ITO Charter.

An astute and observant member of one of the other delegations remarked to me, "None of the countries represented here is interested primarily in improving foreign trade. All are most deeply concerned about their own domestic problems." Of course, as properly understood, this was perfectly true. We are interested in foreign trade, not as an end in itself, but because it affects domestic prosperity. The willingness of a nation to negotiate and the depth of tariff cut that it will grant depend on its traditions, policies, and ambitions. Virtually every country represented at Geneva is at present confronted by some serious problem that limits its ability and its willingness to grant certain types of concessions.

The greatest impediment at present to expansion of our agricultural trade is found in British Empire preferences. But many people in England and in the Dominions believe that preferences are

essential if what remains of the Empire is to survive as an economic unit. Consequently, there was great reluctance to surrender many of these discriminatory tariff arrangements. As everyone here is well aware, a deadlock lasting for four months resulted when our Congress passed a bill that would, in effect, have raised the import taxes on wool by 50 percent. Since this is Australia's principal export to the United States, that country saw nothing to gain by giving up its preferences in the English market if we were to raise our tariff on this commodity. The other Southern Dominions took the same view.

At the same time Cuba found itself in a difficult position, partly because of the uncertainty over preferences, and partly because of some implications in our recent sugar act. Consequently, Cuba was unwilling to grant concessions on some of our important products or even to maintain some favorable rates already existing. Cuba has been a highly important market for our rice, wheat, and lard, as well as many other agricultural products. But if British preferences were to be reduced to any appreciable degree, it was implied that the U.S.-Cuban preferences would also be scaled down. The favorable position of Cuba in our sugar and tobacco markets depended largely on U.S.-Cuban preferences. It was not apparent to Cuba that it would gain enough in other directions to offset the loss of this preferential treatment.

As another complicating factor a strong pressure for tariff increases has recently developed in many countries. This is especially true in those countries whose tariff rates are fixed on a specific basis. With the great increase in prices during the war period, the ad-valorem equivalents and the degree of protection afforded by these specific duties have fallen to a third, a quarter, or sometimes a smaller fraction of their prewar rates.

When the Geneva Conference met, several countries were in process of revising their tariff structure, generally with material increases in rates. Shortly before the Conference opened, France and Czechoslovakia raised their duties quite materially over prewar rates, and wished to start bargaining from the new levels. Another country wished to include in its trade agreements a clause that would permit it to adjust its specific rates upwards to compensate for depreciation in its currency relative to the dollar since 1939.

A development more agreeable to those who wish for trade expansion is occurring in the Low Countries. Here, Belgium, Netherlands

and Luxembourg are forming a customs union with a moderate tariff structure on an ad-valorem basis. The people of the "Benelux" area realize that they must trade to survive. Consequently, this bloc of countries constituted a strong force for moderation and for lowering of barriers.

There were two types of countries that were particularly disinclined to lower their duties or remove other barriers. The first group included those countries that are in foreign exchange difficulties. The second included industrially under-developed countries. Together, these made up a majority of those represented at Geneva.

The industrially under-developed countries included those in Latin America and the British Southern Dominions, as well as India and China. One announced purpose of the Conference was to stimulate economic development. Delegates from countries that consider themselves industrially under-developed appeared to believe that the best way to expand new industries is to raise import duties on their products. In several cases even high tariffs were considered inadequate protection. Almost complete freedom to use tariffs, quotas, and other restrictions, was strongly demanded by some delegations on the grounds that they were essential either to protect new industries or to conserve scarce foreign exchange.

At an international conference, such as that at Geneva, one is strongly impressed by differences in point of view as between countries. Some of our policies seemed quite unreasonable to representatives of other nations. On the other hand, many of the industries for which they demanded protection appeared quite uneconomic to us. In many cases it was known that industries to be protected consisted of only one or two firms, sometimes of a single plant. The fact that higher tariffs and quantitative restrictions are more likely to lead to new monopolies than to new industries, especially in small countries with restricted markets, did not seem to be generally realized.

In opposition to tariff concessions requested of some other countries, it was argued that the industries affected were already in a bad way. To reduce their protection would therefore force further liquidation and might wipe them out entirely.

Another common source of opposition was the claim that some country depended on import duties for much of its revenue, and therefore could not grant sweeping reductions. Still another argument rested on the concept of essentiality. Several countries follow

a policy of levying heavy taxes against "luxuries," and were therefore unwilling to reduce rates on this type of product. At the same time, concessions were often refused on "essential" items, such as common foodstuffs, because of the need for self-sufficiency.

I have tried to give you in a few minutes a thumbnail sketch of some of the principal influences that were impinging on the governments represented in Geneva, and the resulting attitudes of their delegations. I am aware that this sketch is very fragmentary and incomplete. It should help, however, to explain why deep, general reductions in tariff rates and other barriers were not to be expected from other nations any more than from the United States. They simply were not in the cards.

The Charter

The principal purposes of the International Trade Organization, as stated in the draft Charter, are to promote international trade, eliminate trade barriers, expand production, exchange and consumption of goods, promote full employment, assist the economic development of member countries, and facilitate the solution of trade problems by consultation and collaboration among members.

Obviously these are admirable objectives. The problem is to put them into practice. In the first place there is a serious practical difficulty in spelling them out in the course of negotiations, and defining them so that it is possible to say clearly whether a given trade regulation adopted by Country X constitutes a legitimate aid to its own industry or is instead a restrictive barrier against the trade of Country Y. Second, there may be different views as to what methods should be applied. Therefore it may be difficult to get acceptance of any one proposal by a majority of the member countries. Third, it must be remembered that most trade barriers have been erected deliberately as instruments of policy by member countries, and governments of these countries may strenuously oppose their abandonment. Most of the disagreements in forming the Charter and many of the escape clauses that we find in it have come from one or more of these three difficulties.

Debates on the articles of the Charter accurately reflected the conflicting interests of the various nations represented. There was an almost universal spirit of friendliness and cooperativeness among the various delegations. Nevertheless, each one represented the interests of its own country. Consequently, each attempted to

keep any trade advantages that it already had, often by asking for exceptions to the general rules.

Since the full text of the Charter will soon be available for your examination, I shall not attempt to summarize it in detail. Instead, I shall merely comment briefly on a few of its salient features, especially those likely to affect agriculture.

In Chapter II it is recognized that the maintenance of full employment is not a matter for domestic concern only but will require international cooperation as well as appropriate national action. In its efforts to sustain employment, however, no individual nation is to take measures that would create balance of payment difficulties in other countries.

If such a persistent maladjustment in a member's balance of payment occurs, the member concerned shall make its full contribution toward correcting the situation. This implies that if dollars are persistently "scarce," the United States should do all that it can to increase the availability of dollar exchange. At the same time it is stipulated that the other countries involved shall likewise take appropriate action to correct the same situation.

A little later in the same chapter it is stated that the Organization shall, if it considers a decline in employment, production, or demand to require such action, initiate consultations among members with a view to their taking appropriate measures against the international spread of such a depression. But, although there are some prescriptions as to types of action that governments should not adopt, there seem to be no positive suggestions regarding actions that might constitute effective controls.

Early in the Conference several of the heads of delegations in addressing the plenary session emphasized that one of the purposes of the Organization is to control or at least reduce fluctuations in employment and trade. In general these speakers did not appear to distinguish between the problem of attainment of a high level of employment on the one hand, and that of the maintenance of a uniform rate of activity on the other. Later, less and less was heard about the control of business fluctuations, and this subject is not dealt with at length in the final draft of the Charter.

Chapter III recognizes the importance of economic development in all countries. If a member wants help in drawing up economic plans, the Organization shall give advice and technical assistance as far as its resources permit. It is provided that a member may

request the Organization to release it from any obligation that it has assumed under the Charter if it believes that such obligation stands in the way of its program of economic development. In this case the Organization may either deny or may grant the request after negotiations between the members to whom the obligations apply.

Article 16 provides for unconditional most-favored nations treatment with respect to imports and exports. This does not, however, require the elimination of (a) preferences between territories of the British Empire, (b) preferences between countries under common sovereignty as listed in the Charter, (c) preferences between the United States and Cuba, (d) preferences existing between listed adjacent countries. In no event shall any preference permitted to remain in effect exceed the level permitted in the multilateral trade agreement concluded at Geneva.

This article has two effects. The first is to prohibit the granting of new preferences. The second is to legitimize under the Charter those preferences of the groups mentioned that still remain in effect after the Geneva Conference. It was hoped that Great Britain and the Dominions would be willing to negotiate toward the elimination of their preferences in exchange for concessions of other types. The final outcome of these negotiations is not known at the time this is written.

Quantitative restrictions on imports and exports are prohibited or regulated under the Charter. Exceptions are made regarding restrictions applied to relieve critical shortages of foodstuffs or other essential products, restrictions applied in accordance with international commodity agreements, and those which limit output or remove a temporary surplus by making it available to certain groups of domestic consumers free or at prices below current market levels as in our school lunch or food stamp programs. Import restrictions may also be used to safeguard the balance of payments and the monetary reserves of member countries or to establish or maintain state trading enterprises or monopolies.

There was strong pressure, particularly by some of the underdeveloped countries such as India and New Zealand, for more general approval of quantitative restrictions, and for more exemptions from the rule of non-discrimination. It was the contention of these countries that import duties do not provide controls strong enough to permit them to develop their industries in competition with the countries that are already highly industrialized.

Export and import subsidies are prohibited, with certain exceptions. Exported commodities may still be exempted from duties, and taxes may be collected on domestically consumed portions of the products. Furthermore, such taxes may be used to make payments to domestic producers. Use of subsidies is permitted in disposal of commodity surpluses if commodity agreements have been tried and found not to work. They are also permitted in systems which are intended to stabilize price or returns to domestic producers, and which result in prices for export above the level charged domestic consumers. Otherwise, export subsidies are to be discontinued within two years after the Charter enters into force.

Chapter V prohibits business practices which restrain competition, limit access to markets, or foster monopolistic control. Such practices include fixing prices or conditions of sale, allocating territorial markets or fields of business activity, fixing quotas of sales or purchases, limiting production or setting production quotas, discriminating against particular business enterprises, preventing the use of technological improvement, and so on.

Chapter VI is of particular interest to agricultural economists. It provides for the establishment of inter-government agreements to deal with primary commodities including products of agriculture, forestry, fisheries, or mines. Such agreements may be employed to alleviate economic situations which arise when adjustments between production and consumption cannot be effected by the operation of normal market forces, to facilitate shifts of resources and manpower out of over-expanded industries, to moderate pronounced fluctuations of prices, and to assure equitable distribution of primary commodities in short supply.

The Organization may appoint a study group to investigate any difficulties in which a primary commodity is involved. Following the investigation, the Organization may then call an inter-government conference to discuss measures designed to meet the problems existing or anticipated. Such measures may include the establishment of commodity agreements if burdensome surpluses exist or if widespread unemployment is expected to result from maladjustment in the primary industry. Such agreements may not run for more than five years without renewal. They may include non-member countries as well as members. They may provide for regulation of production or trade in the commodity concerned, or for the regulation of prices. In voting on substantive matters under such an agreement, countries which are primarily interested in

imports of the commodity shall have a combined voice equal to that of countries interested in finding export markets.

Such agreements shall provide for availability of supplies adequate for world demand at reasonable prices, and when practicable, for measures to expand world consumption. Participating countries shall formulate and adopt programs of domestic adjustment to conform to the control agreement adopted.

Such commodity agreements may, no doubt, constitute useful instruments for resolving certain types of economic maladjustments. The provision to give importing and exporting countries equal voices in framing the agreements promises a valuable safeguard to consumers. The interests of importing and exporting countries, however, are difficult to reconcile, particularly when questions of "reasonable" prices are concerned. The recent unsuccessful London Wheat Conference lends emphasis to this.

Agreements for economic control by individual commodities have a certain initial simplicity to recommend them. Furthermore, processing and commerce are conducted in terms of individual commodities. Therefore, such agreements are likely to be of interest to traders and processors as much as to farmers. On the other hand, agreements by individual commodities do not conform so well to the framework of agricultural production, at least not in the United States. Thus, mutton is produced along with wool, and in eastern parts of the country, sheep represent a minor enterprise in a diversified farm business. Wheat is a competitor to oats, barley, and to some extent to grain sorghums, corn and pasture in the farm organization in various parts of the country.

For various reasons, inter-government agreements may not be equally successful on all types of commodities. If successful, however, they are likely to result in shifting manpower and capital from one farm enterprise to another within a region, or even as between regions. Consequently, coordination is likely to be needed to assure that the sum of such arrangements will actually operate in the public interest as far as our own country is concerned and will be equitable as between countries.

Probably the most important current development of international trade is that of state trading. This general subject was discussed at length at Geneva. But it cannot be said that any very effective control measures were adopted.

It is stipulated in Article 30 that a state trading enterprise shall be non-discriminatory and influenced solely by commercial con-

siderations such as price, quality, marketability, and transportation. Article 31 provides that any member operating a state monopoly shall, upon request, enter into negotiations with any other member regarding the expansion of trade in the article under the monopoly. A state operating an export monopoly shall negotiate regarding limitation or reduction of protection afforded to domestic consumers in the monopolized product, or regarding provision of an adequate supply to other members at reasonable prices. If it is an import monopoly, the negotiation would be concerned with the margin by which the price to consumers in the country with the monopoly might exceed the landed cost. In this case, the country exercising the monopoly is to agree to import quantities sufficient to satisfy full demand at a price which is no greater than landed cost plus the agreed margin.

In view of differences in qualities of product, seasonality of supply, problems of credit and of storage, and other practical considerations, it is hard to see how a rule of non-discrimination could be enforced. There is always an explanation for a policy followed. It would appear that the margins mentioned above would be extremely difficult to negotiate for technical reasons, and that non-discrimination rules will be harder to enforce against countries using state trading than those using private trading.

Although discriminatory quantitative restrictions are prohibited in private trading, a state monopoly can use such discrimination directly and automatically by adjusting purchases or sales of the commodities in which it deals. Since it has not been possible to devise effective means of control over state monopolies, one effect of the Charter may well be to force countries farther into state trading. As mentioned earlier, the drift toward state trading is already strong, and several countries already conduct the bulk of their foreign trade through governmental agencies. Each new government intervention in economic activity is likely to expand further the area of state trading and restrict that of private trading.

The Geneva Conference has made important progress in setting up means of regulating international trade, especially where it is carried on by private traders. But there is still a lot of work to be done. As yet, the escape clauses are too numerous and the regulation of state trading does not appear to be provided for as effectively as that of private trading. Strengthening and rounding out the Organization envisaged in the Charter will still require many years of patient and persistent effort.

DISCUSSION*

WILFRED MALENBAUM

Department of State

Rather than discuss details of these papers I would like to present some general propositions which will serve to tie the three¹ papers into the one subject of world needs and the possible role of the United States in meeting these needs.

I. *US Export Prospects*

During the first six months of 1947 US merchandise trade was at the rate of \$15.2 billion per year. This is the highest level in our history. However, as a percent of US gross national product, exports during the first six months of 1947 reached the rates of the war years, 1943-44, but were substantially below the levels of the immediate post World War I years.

What are export expectations for fiscal 1948 and after? Without further and new US programs of aid to foreign countries, the most realistic assumptions about US imports from abroad and about the use by foreign countries of other means of dollar payment indicate that US merchandise trade for fiscal 1948 will not exceed \$13 billion, a decline in merchandise trade of at least \$2.2 billion from the levels of the first half of 1947. (These estimates were made on the assumption of prices at the beginning of 1947. Even with price increases, dollar limitations may still make this a realistic money estimate.) Under present aid commitments, the most optimistic forecast for foreign ability to buy goods in the United States for the year beginning July 1, 1948, with the same price assumptions, is some \$10 billion—a further decline of \$3 billion from the estimated level for fiscal 1948 and of something over \$5 billion from the recorded level of the first half of 1947.

The percentage decline in US exports under present aid commitments will probably be fairly evenly spread throughout the continents of the world during fiscal 1948, although the ability of specific countries to buy in the US will change, some very radically, within continents. Without further aid programs it is almost certain that in fiscal 1949 the percentage decline for Europe (including the UK) will be significantly greater than the decline for total US exports.

II. *The Commodity Pattern of US Exports*

How important are agricultural exports in this total value? Of the \$15.2 billion rate of merchandise exports from the United States in the first half of 1947, wheat and flour, other foodstuffs, raw cotton, and tobacco accounted for at least 25 percent. These agricultural products taken together comprise the largest homogeneous component of total exports.

* A discussion presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 8, 1947.

¹ One of these papers will be published later.

Within the group, wheat and flour are the most important single commodity (about 7 percent); all other foodstuffs together comprise some 12 percent, with raw cotton at about 4.5 percent, and tobacco about 2.5 percent. I should add that these magnitudes are in export prices, f.o.b. ports, and thus include higher values than those at the farm. On the other hand, they exclude shipping costs, which have in large part to be met by importing countries in dollars. They thus understate the importers' expenditures.

What will be the commodity pattern of the new levels of US exports under present US aid programs? The following conclusions are based on certain statistical projections which I had occasion to make over the past weeks. Despite the reduction between the actual US exports in the first half of 1947 and those in prospect for fiscal 1948, substantial increases in exports can be expected in coal, in fertilizers, in agricultural machinery and in wheat and flour. Practically all other merchandise exports can be expected to decline. Except for ships and transportation machinery—exports which were governed by very special circumstances warranting exclusion from this discussion—the largest commodity export declines associated with the reduction in total US exports can be expected in the "other foodstuff" category. The percentage decline for other foodstuffs, as well as for cotton and tobacco, is expected to be significantly greater than the percentage decline in total US exports. These generalizations hold up well on a regional basis,—in Europe in particular, where the quantitative pattern along these general lines is intensified. Wheat and flour imports increase more significantly, while all other foodstuffs decline very much more than do total commodity imports from the US. By and large the general pattern is duplicated in the specific imports from the US for other countries.

I believe these statistical results are significant ones. I hesitate to present them as broad generalizations for they have thin theoretical bases. Imports from the US play a relatively small role in the total utilization pattern of goods in most foreign countries. Declines in ability to buy in the US are thus only one component in the income reductions which influence the total (domestic and foreign) expenditure patterns in foreign countries. However, there is some support for their applicability in experience with exports in the second quarter of 1947. Our estimates made on a fixed price basis for the second quarter of 1947 (before final figures were available) differed from these final figures, which reflected the price increases that actually occurred, in a pattern which our generalizations would have suggested. I feel it perhaps safe to conclude that continued dollar shortages resulting in reduced US exports will—given approximately the present foreign situation, which might roughly mean during the next 12 to 18 months—more than proportionately affect US exports of agricultural commodities. It is conceivable too that, given a reduced US ability to supply grains, foreign dollars that will thus be released may well during this period be shifted not to other US agricultural products but to purchases of non-agricultural goods.

III. *Implications*

What does this probable reduction in food exports, under present aid programs, mean? Certainly, given the present situation in, and perhaps expectations for, employment in this country, the decline in shipments abroad will in general result in expanded American utilization. This is probably unevenly true for all agricultural commodities. The decline in export demand may result in a significant softening in prices for such goods as fruits, eggs, vegetables, tobacco, and cotton. These are perhaps serious consequences. I think they are less serious than the implications of the export decline for the countries that are now in need of American products.

The apparent preference for certain non-agricultural products from the US which becomes apparent as total exports decline (or as the purchasing power of foreign dollars is reduced) does not, to me, raise doubts about the real need in foreign countries for food products. It rather indicates that, with reduced ability to buy, these countries prefer to devote all efforts to rebuilding their economies. In this process, civilian consumption must suffer. In other words, the reduced food purchases—which, like the so-called gaps in the world cereal balance, are made up in the morbidity rates of the deficit countries—are reductions in supplies which are held to be essential.

Even with the record \$15.2 billion export rate of the first half of 1947, the European share, for example, was about \$6 billion. Current estimates of the Paris Conference for Western European countries alone are about \$7-8 billion per year for the next four years. This, or even a "screened-down" import need estimate, is well above the \$6 billion for all of Europe, and the less-than-\$5 billion in prospect for fiscal 1948.

I repeat again, US commodity exports of \$15.2 billion, even though at record levels, are still below earlier percentage achievements of our economy. I think the Krug Committee report, shortly to appear, will show no alarm in general over the implications for US resources of the rate of exports in the first half of 1947.

For the longer run, it seems clear that, barring a large private capital investment program over a long period of years, the value of US exports cannot be expected to exceed \$10 billion per year, which at present national income levels will be the percentage of exports obtained in the middle '20's. It seems to me that a reconstructed world will be able to pay for this level of imports by exports to the US and other dollar earnings of a recurrent nature. It is probably true that in this export pattern food and agricultural products will not hold the position that they have held in the immediate post-war years. It may indeed be that the need for larger markets, as a stimulant to American production, may prompt both agricultural and non-agricultural interests in the US to urge the re-institution of measures for maintaining larger levels of exports. It would indeed be ironical if such future internal pressures did result in export levels which we find so hard to maintain today and which are now an essential for the rehabilitation and development, economically and politically, of foreign countries.

RURAL PLANNING IN THE UNITED KINGDOM*

A. N. DUCKHAM AND J. A. YOUNG

British Embassy, Washington

RURAL planning in the United Kingdom¹ falls into three main heads: (I) *economic planning* to ensure stability and efficiency in farming; (II) *amenity and land use planning*, to ensure that our very limited land resources are used to the best advantage of the nation and to prevent scenic spoliation of the countryside; (III) *rural welfare planning* to raise the standard of living of farm families, particularly of agricultural wage earners, and generally to secure for the countryman the same social privileges as the townsman.

In the United States these are familiar aims. There are, for example, price support programmes under the first, soil conservation under the second, and Rural Electrification under the third of my heads. If, however, the United Kingdom approach to these goals differs from yours, it is because our social, economic and political problems are different from those in the United States. We are very short of land; we have a very large urban population; we import much of our food and fibre; the war has made us a debtor nation acutely short of foreign exchange, particularly United States dollars; further, although we share with you not only a fierce belief in the freedom of the individual but also many historical and cultural traditions, our political structure and our social attitudes differ in many important respects from yours. A few basic facts relating to the United Kingdom, and particularly to our agriculture, are therefore essential to an appreciation of our rural planning programmes.

General Background

Firstly, our density of population is very high. In England and Wales there are 703 people per square mile, compared with 702 in Belgium, 197 in France and 43 in the United States. As a result, even although we have a vigorous agriculture and our crop yields

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 11, 1947.

¹ The United Kingdom consists of England and Wales, Scotland and Northern Ireland. This paper deals primarily with Rural Planning in England and Wales, but the policy in Scotland and Northern Ireland, both of which have their own Departments of Agriculture, is essentially the same though the administration may differ.

per acre average twice those of the United States, we depend largely on imports of food and raw materials. Before the 1939-45 war we imported two-thirds of our total food consumption, and even during the war imports accounted for slightly over one-half.

Secondly, our high population density makes land a scarce and valuable commodity; its proper and efficient utilisation is vital to our existence. Imagine what it would be like to have $47\frac{1}{2}$ million people, or almost one-third of the entire United States population, living in Oregon—a state equal in size and comparable in climate to the United Kingdom but with only a million inhabitants.

Thirdly, only 7% of our total population is engaged in farming, compared with 20% in the United States. Accordingly, our agricultural policy is influenced by the views of the other 93% who are all consumers and a large proportion of whom are industrial workers. Hence, in return for fixed prices and economic stability, our Government must not only demand of farmers some guarantee of efficiency but must have the power to enforce that guarantee.

Fourthly, we have, as a result of the war, an acute and large unfavourable balance of payments, whereas you have a very considerable favourable balance. Before the war, our exports of goods provided about 60% of the exchange for our imports, the remaining 40% coming from shipping, insurance, etc. and interest on overseas investments. But these investments are now largely gone; we had to dispose of them to finance our war effort, particularly during the year when the British Commonwealth stood alone against Hitlerite Germany. Our problem now is to rebuild the export trade we sacrificed during the war, and having done that, to increase our exports or, if necessary, cut down our imports until a balance is achieved.

Fifthly, this problem is aggravated by the other large losses we sustained during the war. For example, the destruction of houses through bombing has been estimated at \$6 billion while our loss in shipping amounted to \$3 billion. For six years (1939-1945) we were unable to spare the men and materials to repair and improve our transport services and industrial machinery. Furthermore, our overseas debt has been increased by \$12 billion while our loss of manpower by enemy action totalled 387,000. All these losses mean that we must handle our national economy very carefully. We cannot afford the luxury of a gambling chance, and that is one good reason why a nationally planned economy is essential.

On the asset side, however, we have a vigorous and skilled in-

dustrial and farm population; a national unity which exhibits no great social conflicts; geographical compactness; and a mild humid climate and soils, which agriculturally, are well adapted to intensive mixed and grassland farming with emphasis on the protective foods—livestock, fruit and vegetables. With these basic facts in mind, we can now turn to the details of our rural planning programmes.

ECONOMIC PLANNING

Price Support and Production Policy

Prewar: From the discontinuance of controls after the first world war until 1931, the United Kingdom adopted a policy of laissez faire towards agriculture and, apart from research and education, there was no direct government assistance to or tariff protection of farming; imports were freely admitted and the only exception was the subsidised sugar beet industry. Admittedly, agricultural land was freed from rates (local taxes) during this period, but there was no intervention with the agricultural economy until 1931, when Government aid became essential to counter the depression. As a result, during the thirties, four main lines of governmental action were developed.

First, imports of much agricultural produce were limited by means of quotas and moderate tariffs.

Second, Agricultural Marketing Acts were passed in 1931 and 1933. Under these Acts producers of a commodity were given the right to form a Marketing Board, provided two-thirds of them were in favour. Once a Board was set up it had compulsory powers over the marketing activities of all producers of the commodity concerned. Not only did a Board act as a bargaining agent with the relevant trade organizations of dealers and packers, but it had also limited powers to regulate trade in the commodity, e.g. by licensing all handlers, etc. Such Boards were set up for milk, hogs, potatoes and hops.

Third, direct exchequer subsidies were paid to farmers in respect of oats, barley and beef. In the case of wheat a levy was imposed on *all* flour used in the United Kingdom from both home and overseas sources, and the funds so created were used to bring the market price of home-grown wheat up to a standard figure.

Fourth, grants were made to farmers to cover 50% of the cost of lime and phosphatic basic slag for application to agricultural land.

Similar grants were available for some types of drainage. Shortly before the outbreak of the 1939-45 war, farmers were paid a subsidy of \$8.00 an acre for ploughing up pasture that had been seven years or more in grass. The aim of the latter subsidy was, of course, to rejuvenate old pastures and accumulate fertility and to have an increased acreage under tillage crops in case of war.

Although the general economic recovery of the middle and late thirties was, no doubt, primarily responsible for pulling our farmers out of the depression, these four lines of action did have one important consequence. They helped to increase the fertility and productive resources of our land and they incidentally provided a nucleus of administrative machinery on which our wartime production and marketing policy could be rapidly built.

Wartime

With the outbreak of war in 1939, we moved rapidly to a planned food and agricultural economy. In order to release shipping for military purposes, imports of food and feeding stuffs were cut drastically. Simultaneously, we ploughed up 38% of our permanent grassland and devoted the resultant increased tillage acreage to crops for direct human consumption (wheat, potatoes, sugar beet, vegetables) and to cereals and fodder crops for livestock, especially dairy cattle. Calorie and protective crops and milk production had top priority.

This revolution in our agriculture was achieved through five main instruments:—

- (a) Price fixing and marketing control. Farmers were offered good fixed prices and guaranteed markets for about three-quarters of the total value of their produce. This enabled them to get on with their primary job, viz. production, without having to worry about future prices; it enabled the Government to adjust relative prices in favour of the commodities most urgently needed.
- (b) Control (by publicity and by direction) of the acreage of essential and luxury crops and, in some cases, of livestock numbers. Price and persuasion by themselves were neither rapid nor certain enough methods of converting our farming to wartime needs.
- (c) The allocation (rationing) of feeding stuffs, fertilisers, farm machinery and other production needs, which were in short supply.
- (d) The provision of both the technical advice and of the custom work and other goods and services without which a grassland farmer could not become a crop producer.
- (e) The whole-hearted cooperation of our landlords, farmers and agricultural wage earners.

The Ministry of Food was responsible for marketing; the Ministry of Agriculture was responsible for the execution of the remainder of this programme which, viewed in retrospect, created a most effective *Machine* for rapidly changing the volume and pattern of our production. The whole programme was coordinated by the Cabinet.

The Ministry of Agriculture for England and Wales, which worked in close collaboration with our farmers and farm workers organizations, operated through some 62 unpaid County War Agricultural Executive Committees. These Committees, appointed by the Minister of Agriculture, each consisted of from 8 to 12 members (mostly farmers), but including landowners and agricultural wage earners. Each Committee was fully responsible for the food production campaign in its County. It had authority to direct farmers to grow priority crops and to insist on a reasonable degree of general efficiency. To this end it had power to dispossess inefficient farmers or farmers who refused to play their part in the emergency, but this authority was subject to the Minister of Agriculture's approval in each case. In practice, however, only 0.7% of the farmers in all counties had to be dispossessed during the six years of war. These Committees were also responsible for seeing that farmers were not handicapped by lack of labour, equipment or other essential supplies; for instance, they operated the National rationing schemes for fertilizers and feeding stuffs, and regulated the distribution of all kinds of controlled supplies, e.g. machinery, steel, timber, gasoline, etc.

Each Committee had "subject" sub-committees for cultivations, labour, machinery, drainage, livestock, technical developments (extension work), feeding stuffs, insects and pests, horticulture, finance, etc. and unpaid "district" sub-committees to maintain liaison between the County Committee and individual farmers through the "parish" or "community" groups. County Committees had paid executive officers and technical staffs capable of advising farmers and generally directing food production in their areas.

Early each year the Government drew up "target" acreages or quantities of the crops and livestock products required. These goals were broken down to county, district and finally individual farm quotas. At the same time, in consultation with our major farm organizations (viz. the three National Farmers' Unions) forward prices were fixed by the Government for the major agricultural

products. When ready for market, these were sold either through controlled distribution channels or to the Ministry of Food, which adapted and cooperated with existing private and public marketing organizations to the needs of a planned wartime economy.

The Future—Stability

The control of cropping (e.g. compelling farmers to grow specified acreages of wheat, potatoes) and the allocation of feeding stuffs, fertilisers, farm machines, etc. are being dropped or will cease as soon as current shortages are eased. In other respects, however, the main essentials of our wartime production and marketing organization are (with the consent of the landowners, farmers and agricultural wage earners and, in general, the support of all political parties) to be continued. The Agriculture Act of 1947, which will implement this policy, has two main aims: stability and efficiency.

Price and income stability is to be achieved in the agricultural industry by continuing the present system of guaranteed prices and assured markets for three-quarters of its produce supported, as necessary, by direct Treasury subsidies or in other ways. (Crop prices are now fixed early in the year previous to that in which crops are harvested. In the case of livestock products, *minimum* prices are announced from two to four years ahead and *actual* prices one year in advance.) How far the wartime pattern of marketing organization will be continued has yet to be decided.

The Government's annual price review, held in consultation with the National Farmers' Unions, will be continued. At this review the whole agricultural economy is considered, including cost of production and income figures produced by the Agricultural Economists stationed at the Universities in the different provinces, together with (a) any relevant data produced by the Ministry of Agriculture and by the Farmers' Unions, and (b) the internal and world demand and supply position of each agricultural product. There is and will be no standard formula for the fixing of prices. The prices fixed will be calculated to give a fair return to producers and to steer the volume and pattern of production in the direction required by the national interest.

The Future—Production Efficiency

Efficiency, already high both in terms of output per man and per acre, is to be maintained and increased *primarily* through the

provision of technical advice aimed at good farming and estate management and *not* by controlling the farmers' operations or cropping programmes. For this purpose, a new National Agricultural Advisory (Extension) Service has been set up as a branch of the Ministry of Agriculture. (Previously agricultural extension work was the responsibility of the Universities and the County Councils, aided by grants from the Ministry of Agriculture.) The Counties have been grouped into provinces, each about the size of a typical United States State, and each with a Provincial Director and a set of diagnostic and extension specialists (e.g. entomology, grassland, etc.). Each County has an Advisory Officer (Extension Agent) and 3 or 4 District Advisory Officers, so that ultimately there will be one Advisory Officer per 1,000 farmers.

Alongside the National Agricultural Advisory Service, which will be mainly concerned with "good husbandry" (i.e. efficient farming by tenant-farmers and owner occupiers), there is to be within the Ministry of Agriculture a National Land Service. This latter service will be concerned with securing "good estate management" by the landlords, who own about two-thirds of our farm land, with the administration of our well-established land tenure legislation and with the amenity and land use planning described below.

These two services—the Advisory Service and the Land Service—are being integrated at the county level through the County Agricultural Executive Committees, of which the County Advisory Officer is also normally the Executive Officer. These Committees are appointed by the Minister of Agriculture and consist of 12 members, five of whom are the direct nominees of the Minister of Agriculture, three are appointed from names submitted by the National Farmers' Union (representing tenant and owning farmers), two from names submitted by the Farm Workers, and two from nominees of the landlords' organization (the Central Landowners' Association). The Committees, which are the direct successors of their wartime counterparts, will have the authority to enforce reasonable standards of good husbandry and estate management in cases where the persuasion and propaganda have failed. Farmers or landlords who refuse to rise to these reasonable standards may be put under supervision for a year and if, after that time, there is no improvement a County Committee may, with the approval of the Minister, serve notice of dispossession.

The "inefficient" farmer or landlord, however, has the right of

appeal to an independent Agricultural Land Tribunal, the decision of which is final and binding on both the Minister and the Committee. These Tribunals consist of an independent legal chairman, appointed by the Lord Chancellor (compared with the Chief Justice of the Supreme Court), together with a farmer and a landlord, appointed by the Minister of Agriculture from panels nominated respectively by the farmers' and landlords' organizations. The enforcement of efficiency is thus almost entirely in the hands of the representatives of those engaged in farming; farmers and landlords are judged by their peers, not by Government officials.

When a farmer or landlord is dispossessed, he is, of course, entitled to compensation. The Government has the right to buy the land or alternatively the Committee may re-let to another tenant. Land which is taken over by Government will be reconditioned by an Agricultural Land Commission—a non-representative body of four to seven members chosen for their ability and experience and then re-let to a suitable tenant.

Power to dispossess a tenant farmer or a landlord may seem an infringement of the liberty of the individual. Freedom, however, is relative. In our crowded and indebted island, we can neither afford the luxury of idle or ill-used acres nor tolerate individual farmers or landlords whose failure to give to their best prejudices the ultimate freedom of others. Apart from this, our farming industry, having had nearly eight years' experience of a planned or semi-planned economy, is willing to accept the thesis that an industrial nation, of whom 90% are in the towns, can reasonably demand efficiency in exchange for stability.

Four further provisions of this comprehensive Act may be mentioned.

First, in order to enable tenants (two-thirds of our farmers occupying two-thirds of our acreage are cash tenants on more or less fixed cash rents) to plan ahead with confidence, the Act gives the tenant still greater security of tenure than he had under previous Acts. He cannot now be given notice to quit without the consent of the Minister of Agriculture.

Secondly, the Act also provides for the setting up of small holdings, normally not larger than 50 acres in size, as a stepping stone by which promising agricultural wage earners can become independent farmers.

Third, the Act enables the Agricultural Land Commission to

carry out experimental schemes in the adjustment of farm boundaries. By historical accident rather than of set purpose, many of our farms consist of scattered fields or ill-shaped small fields. This fragmentation is often inconsistent with efficiency. Accordingly, up to three, experimental schemes (which may involve government acquisition of large blocks of land) and which will aim to re-group the farms in the experimental areas into more economic units, are to be initiated. The farms so re-grouped will be let to tenants in the ordinary way.

Fourth, as part of the efficiency drive, this and other legislation empowers the Government, through the County Committees or otherwise, to continue to do "custom" (contract) work for, and provide other goods and service to farmers and to maintain the war-time farm improvement programme through grants and loans for liming, fertilizing, water supply, drainage, etc.

The Agriculture Act of 1947 does not, however, nationalize the land. The Government will acquire ownership only in limited cases, e.g. small parcels of land that may be taken over from dispossessed landlords or for small holding schemes or to prevent excessive fragmentation or for the experimental regrouping schemes. The Government (through the Crown Lands Commission, the Armed Services, and so on) has in fact been our biggest landlord for many years and, as in the past, government owned land will be rented to suitable tenants.²

AMENITY AND LAND USE PLANNING

Not only must we make sure that our agricultural land is well used, but in our crowded island we must also ensure that our total land surface is used to best advantage, i.e. well allocated between agriculture, forestry, industry, housing, recreation, roads, etc. Past experience shows that uncontrolled private enterprise does not achieve either the economic or the aesthetic optimum. We want to disperse some of our urban people from large, overcrowded conur-

² In the United Kingdom there is a large area of hill land (humid range) some of which is used only for sheep grazing (on range lines) and some of which is marginal for cultivation. As in many other countries modern developments have tended to favour the lowland farmers, and our hill farms (or ranches) are not in a very prosperous condition, despite the assistance and generally improved economic conditions which have put other types of farming on a sound basis. We cannot, however, afford to see marginal land abandoned. Hence special measures are adopted to help hill farmers. These include direct subsidies per head of sheep or cattle and grants to cover 50 percent of such improvements as farm buildings, electricity, water supply, etc. needed to rehabilitate these farms into economic units.

bations to new towns; we want to double our limited acreage under forests; we want to prevent good farm land being used for building when cheaper or marginal land would serve equally well; we must ensure that our mineral resources are not sterilized by surface building and that exhausted strip mines are recovered for food production. Finally, though we intend to create more national parks and wild life reservations, we cannot spare the acreage that you can for large recreational facilities; we must preserve the beauty of our fields and villages so that the townsman from the "dark Satanic" mills as well as rural population can appreciate and enjoy "England's green and pleasant land."

All this means that the control of land use is essential in the national interest. The Town and Country Planning Act, 1947, and other recent legislation therefore consolidates and extends the principles of controlled land use embodied in the legislation of the last 30 years. Broadly speaking, the recent legislation provides that 145 local planning authorities shall produce local land utilization schemes which will be coordinated by the central government departments concerned; that a landowner may only sell or develop his land for its scheduled purpose and that the net price payable to the owner for land to be used for building and other purposes which enhance its value shall be its valuation for its *existing* use. It is felt that the increased value of land due to planning or the provision of such public services as electricity, water, sewage, belongs to the community and not to the owner of the land.

Afforestation:

Our approach to land utilization may be illustrated by our forestry policy. There are large areas of hill land in the United Kingdom which, by reason of altitude or for some other reason, are useless from a purely agricultural point of view, even for sheep grazing. Such areas may have, however, a value for forestry purposes, and over the past 25 years some progress with their afforestation has been made by the Forestry Commission, which is now responsible to the Minister of Agriculture, in acquiring and afforesting limited areas. However, consumption of timber in the United Kingdom has been increasing rapidly. Before the war our total timber requirements were over \$260,000,000 per year, of which 96% were imported. During the war our home supplies had to be exploited heavily and we are still critically short of timber. Accordingly, the

Forestry Commission has proposed a 50-year afforestation programme designed to increase our forest area from three to five million acres. For this purpose, the Government are to subsidize and do custom work for private forest owners as well as ensuring that the increase in forest area will only take in land unsuited to farming.

RURAL WELFARE

The general effect of our economic planning should, of course, be to keep the real incomes of those who live on and by the land at a reasonable level. At the same time, our land use policy should improve rural amenities (e.g. decentralization of industry should create more local markets and make urban social amenities accessible to more of our farm population). But there are other aspects of our national policies which have a more direct bearing on rural welfare. In this category are the fixing of agricultural wages; the provision of good houses and ample education facilities; comprehensive schemes for health insurance, social security, school meals, etc.

Agricultural Wages:

The greater part of our farming population are weekly cash wage earners. Except for one short break, we have now had minimum statutory wages for agricultural workers for nearly 30 years. The aim of this legislation is to ensure a reasonable standard of living for farm workers and to bring farm wages more into line with industrial wages. The gap between farm and urban wages has been narrowed considerably, e.g. the average weekly wage of a farm worker and a bricklayer were respectively in 1924, 28/- and 72/9; in 1936 they were 32/- and 68/6; while in 1946 the figures were 80/1 and 112/7.³ Thus in 1924 the farm labourer's wage was only 38% of the bricklayer's compared with 71% in 1946.

Higher farm wages are, it is felt, in the interests of the farmer as well as the worker. They help to retain good men on the land and simultaneously stimulate the farmer to employ labour saving devices and improve his efficiency. The level of agricultural wages, together with other costs are, of course, taken into account in fixing the prices of farm products.

Before the war, minimum wages were fixed locally by County Agricultural Wages Committees with the result that they differed

³ At present one shilling equals 20 cents.

from county to county. During the war we moved rapidly towards national farm prices which applied equally to all farms wherever located. This movement was paralleled by a National minimum wage (applying to all counties and persons), which is being continued. The Agricultural Wages (Regulation) Act of 1947 places the fixing of minimum farm wages throughout the country in the hands of a Central Wages Board on which the farmers and agricultural trade unions sit with a nucleus of independent members appointed by the Government.

Housing, Water and Electricity:

Under various Acts dating back to 1926, grants have been available for the building and reconditioning of rural houses, but the supply is still inadequate in both quantity and quality. A survey carried out in 1941-43 indicated that only 58% of farm houses and 50% of farm workers' cottages might be described as in good condition. The same survey showed that only 47% of farm houses have a piped water supply and only 27% have electricity installed.

The Government's policy is to ensure that the rural population—both workers and farmers—are as well housed as our city dwellers and that the rents of such houses are within the income of farm workers. Although at present we are acutely short of labour and building materials, under a recent Housing Act special subsidies are available from the Exchequer for houses built by local authorities for agricultural workers. These cottages will, it is intended, be built by local authorities in villages or groups to facilitate the supply of water, electricity, and recreational facilities grants are also available to landlords for the building of single cottages for agricultural workers in the more isolated areas.

A scheme has already been in operation for some time under which farmers may obtain a grant covering fifty percent of the cost of installing a piped water supply to their farms and, if necessary, sinking a well to provide the supply. Under the Rural Water Supply and Sewerage Act of 1944, the Ministry of Health can provide greater piped water supplies and sewerage facilities in rural localities. Furthermore, the Water Act of 1945 confers on farmers for the first time the right to supply from a public source subject always to certain safeguards for the supply of other consumers.

So far as *electricity* is concerned, the Hill Farming Act, already referred to, includes the installation of electricity amongst the items for which hill farmers may obtain grants. For other farmers, the shortage of supply of electricity, labour and materials—particularly timber poles—is holding up progress, but we hope eventually to see electricity installed in every farm in the country. The Government's proposals to nationalize electricity will, it is hoped, speed this process.

Education:

As in the United States, our rural people do not have such good educational facilities as townsfolk, although the education available to rural people (and in fact the entire community) has been greatly expanded under the Education Acts of 1944 and 1946. Both primary (grade) and secondary (high school) education is available free to all children. In addition the number of scholarships available for university training has been trebled. The number of residential farm institutes (which provide one and two year practical courses) will be more than doubled. Furthermore, the number of university scholarships for agricultural courses, some of which are reserved entirely for sons of farm wage earners, has been increased.

Health and Social Insurance:

The system of national health and social insurance, which was started in the United Kingdom shortly before World War I, has recently been extended to cover every man, woman and child in the country, including, of course, farmers, agricultural wage earners and their dependents. These comprehensive schemes are (or will be) financed by compulsory weekly premiums from both employer and employee together with a contribution from the taxpayer for Exchequer funds. They are to cover sickness, unemployment, injury at work, maternity, widowhood, orphanhood, blindness, old age and funeral expenses. The self-employer (e.g. the farmer working on his own account) will contribute to and enjoy the full benefits of these schemes. In addition, the farmer and his employees are entitled to a family allowance for each child after the first, whilst their children can participate in the programme of cheap and free school meals and school milk.

Summary.

Our long-term policy is supported by farmers, farm wage earners and landlords as well as the major political parties. It is to maintain a prosperous, efficient and flexible agricultural industry, to achieve a system of land use which makes the optimum use of the limited acreage of our crowded island, and to have a rural population which enjoys standards of living, social services and amenities as good as the townsmen's. We want to produce those commodities for which our climate, soils and skills are best suited and to import those commodities that can be more economically produced elsewhere—always subject, of course, to the availability of supplies and foreign exchange.

To this end we have, it is hoped, devised flexible price support and production *machines* so that the volume and pattern of our agricultural production can, as circumstances change, be adjusted to obtain the optimum use of our total national resources of land, raw materials, foreign exchange and manpower.

Currently our agricultural output, like yours, is about one-third greater than pre-war. In order, however, to ease our acute balance of payments problem and reduce our dependence on imports of food and fibre, the British Government has recently (August 1947) decided to increase production a further 20% in the next few years. This increased target will place a great strain on our farm population and national resources. It will severely test both the flexibility and the administrative practicability of the price support and production machines outlined in this paper. British agriculture is, however, determined to contribute its full share to the solution of the nation's post-war economic difficulties, and will do its utmost to attain these new production goals.

AN APPRAISAL OF RURAL PLANNING IN THE UNITED KINGDOM*

W. M. DRUMMOND
Ontario Agricultural College

IN discussing this subject I should like, first of all, to express complete agreement with the general objectives which the British planning program is designed to achieve. There can be little room for disagreement regarding the desirability of more stable farm prices and incomes, more efficient farm production, greater conservation and more scientific use of the limited land resources, higher standards of rural welfare and a more prosperous and secure farm population. The real question concerns the actual extent to which the program outlined by Mr. Duckham is likely to achieve these hoped-for results.

In considering the possibilities and limitations of the program I shall deal first with a number of what appear to me to be its more favorable aspects. Thereafter I shall indicate several factors which might possibly be expected to condition or limit its effectiveness. Obviously in the limited time available only the most general sort of reference to these various points will be possible.

To begin with it may be said that the giving of a guaranteed price for whatever amount of product may be supplied will at least make it unnecessary for farmers to speculate regarding the course of price levels in the period immediately ahead. They will not need to fear lest demand and therefore price may fall between the start of production and the time a product is ready for market. Being free from the necessity of making calculations regarding the probable course of prices, they can not only choose a production program suggested by the known prices for the various products but can more completely concentrate on their production job proper. Moreover the guaranteed price should go far to prevent those tremendous variations in prices and incomes which have, in earlier years, resulted from major farmer mistakes concerning supply, demand and price prospects. Whatever may be its effect on the average income received over a period of years, it should at least result in more even income as between different years and between producers of different kinds of products. It should be stated, however, that the psy-

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chological and economic gain from the guaranteed price and market would be much more pronounced in a period of relatively limited and doubtful demand than in one of the opposite character. With the present-day demand in England no farmer should really need any price or market guarantee to remove fears or to ensure reasonable prices.

In the second place there can be little doubt that the technique of fixed producer prices makes it possible for the State to encourage and thereby secure more of certain products that may be particularly necessary at any specific time. This would be specially true if the period were one in which farm prices generally were at relatively low levels. At such a time farmers would shift readily to the production of any product the fixed price of which was raised appreciably. They would do this not so much because this particular price was raised as because the other product prices were low in comparison. While production response to a price inducement will be more pronounced under such conditions, there will be some degree of reaction under any conditions. Since price is the indicator which producers are most inclined to follow, they will, other things being equal, produce more of the higher-priced article. It follows from this that, by using the fixed-price technique, the British people can definitely arrange to obtain a larger part of their food from their own resources than would otherwise be possible. This, of course, is particularly important under current circumstances.

In respect of the question as to whether farmers in general will supply more products in general merely because prices are guaranteed, opinions may very well differ. Personally, I am inclined to the view that, on balance, they will. It may very well be that long time trends show no significant changes in total production as the result of even pronounced changes in price levels. If so this may be partly due to the very fact that past price levels were notoriously unstable and uncertain. Moreover the experience of the recent war period in several countries when many prices were fixed and guaranteed strongly suggests that a large percentage of farmers will aim to produce more if they are sure of obtaining a certain price, assuming, of course, that expansion of production is technically possible. This is not to deny that a certain percentage of farmers will do exactly the opposite. The main point about the guaranteed price is that it does remove a large element of risk the running of which has heretofore been a definite obstacle to production. In addition the

guaranteed price gives farmers something definite to work for. If its general effect is to increase production there is something to be said for its use in England at the present time when extra production is the prime requirement.

There will undoubtedly be some who will criticize the program on the ground that the application of the guaranteed price and market provisions is incomplete. In reply to any such criticism it may be said that, while there are a number of products to which the guaranteed provisions do not apply, this does not mean that producers of these particular products will secure no price and market support assistance. Such assistance will be obtained indirectly for the reason that the giving of specific guarantees in respect of the more important commodities which constitute the major percentage of the total agricultural production will tend to limit production of the products not expressly covered by the guarantee provisions. It may also be said that, by confining the fixed price and market guarantees to the more important products, the general investigatory and administrative task is much more likely to be kept within the bounds of feasibility. Moreover the concentration of effort on a limited list of products should increase considerably the accuracy of the statistical data on which the fixed prices are based.

Passing to the provisions which are designed to increase productive efficiency one cannot but feel that the extension set-up in general and the operation of the County Agricultural Executive Committees in particular should aid considerably in spreading agricultural technological information among many of those farmers who are ordinarily least likely or able to obtain it. It is generally recognized that county agents everywhere have always found it easiest to secure co-operation from that relatively small percentage of farmers who are already the most efficient and who, consequently, are least in need of the special services provided. It has always been difficult and often impossible to secure the confidence of and make a definite impression on the great mass of farmers whose knowledge and methods are most in need of improvement. In addition it is only too obvious that there are definite physical limits to the number of farmer contacts that a paid extension worker can make. In order that his work may be made fully effective he must have the active co-operation of the leaders in his farming community. The uniqueness of the English program lies in the fact that it makes special provision for this cooperation to be

supplied continuously and in an organized fashion. Moreover the members of the Executive Committees are clothed with specific authority and responsibility. Since the number of farmers on the Committees and Sub-committees is fairly large and since each local area is represented, it should be physically possible to establish personal contact with and exercise some degree of supervision over every farmer in the country. It would thus seem that the English system does provide a mechanism whereby every farmer can at least be led to some of the water which emanates from scientific headquarters. To the extent that such water is actually imbibed an improvement in productive efficiency can be expected.

Apart from any influence on productive efficiency there is a good deal to be said for the emphasis which the English system places on the concept of industrial self-government in agriculture. In recent years the actual extent to which farmers can or should be expected to rely on their own cooperative efforts has been a subject of considerable controversy in many quarters. For the most part cooperative self help has been thought of in terms of organized cooperatives for the purchase or sale of commodities or the performance of specific marketing functions. The making of organized representations to governing bodies has also been looked upon as a legitimate and necessary form of cooperative self help. On the other hand comparatively little attention has been given to the possibilities of applying the cooperative self help idea in the realm of farm production proper. In view of this the current nation-wide application of the idea in the United Kingdom should be looked upon as a most welcome experiment. The additional fact that the expansion of industrial self-government would seem to make government administration of agriculture in England less purely political is also encouraging. In regard to the compulsory features of the program most people will agree that there are farming practices in every community which militate against the general interest and, as such, should be eliminated. To the extent that the British program provides sanctions which are calculated to prevent the exercise of individual liberty in a way that constitutes a flagrant violation of a social trust it should be highly commended.

A further favorable feature of the greater efficiency part of the program is that it can hardly miss making some contribution to an improved social relationship between the different grades or groups of farmers. That a fairly pronounced stratification exists among the

ranks of British farmers is a generally recognized fact. Some reduction of this should gradually occur for at least two reasons. For one thing the social contacts that will be incidental to the supervisory work of the Agricultural Executive Committees will make for a greater commonality of interest and understanding. In the second place, since the major part of the efficiency drive will be concentrated on the more economically and socially disadvantaged groups, any progress made should be reflected in a gradual narrowing of the gap between the highest and lowest degrees of farming efficiency and should therefore result in a gradual lessening of the inequality of farm incomes. Whether it is sociologically sound to place such exclusive emphasis on technical and economic efficiency I leave for others to say. In this connection, however, it should perhaps be stated that the emergency situation in England has made it necessary for many farmers to undertake rather suddenly types of farming with which they are relatively unacquainted. The situation is such that there is urgent need for learning new techniques as speedily as possible.

In regard to the provisions aimed at improved land use one can say little more than that they seem sound in principle. It would appear that the State will have ample land on which to demonstrate its capacity as a farm manager. Critics who may regard wholesale land nationalization as a necessary prelude to its subdivision into the optimum-sized farm units must recognize that any such policy, whatever its merits, is at the moment financially unthinkable. The arrangements whereby the Agricultural Land Commission is to determine the effect of regrouping scattered and ill-shaped pieces of land on operational efficiency, while experimental in nature, are very much in order and should result in extremely useful data on which to base future policy. The revisions to the land tenure legislation seem likely to add considerably to the clarification and definiteness of owner-operator arrangements. If they do they will contribute something indirectly to a sense of security and through that to the all-important increased efficiency. As to the arrangements for establishing small holdings one can at least say that the selection of the occupants on the basis of proven practical experience is likely to ensure a greater degree of success than that heretofore experienced. While the size of the holding seems small in the light of the land requirements ordinarily recommended for efficient farming, it may be quite sufficient for certain types of farming.

Moreover it may be large enough to permit demonstration of the economic feasibility of the part-time and one-man types of farming.

Generally speaking one cannot help concluding that the combined effect of the various parts of the program aimed at greater efficiency will be considerable even though it may be much more gradual than is desired. To achieve really marked efficiency gains within a reasonable period, however, full reliance cannot be placed on any production planning program as such. That goal can only be reached if British farmers can be made to realize the full consequences of failure to attain it.

Passing now to what may be thought of as the more limiting considerations, one may note first of all that providing stabilized prices is going only part way toward providing stabilized incomes and that, after all, it is income rather than price that is the farmer's main concern. In answer to this the defenders of the British price program might reply that income stabilization is out of the question inasmuch as it is not possible for any government to guarantee stable production. The obvious reply to this, however, is that, while it is impossible to bring about even production, it is by no means impossible to do considerable about regularizing the amount of a product which goes to market. In view of this one might have expected to find in the program some specific provision for applying the ever-normal-granary idea. It may well be, of course, that the current urgency of the food demand made it quite impossible to even consider holding any part of a season's supply off the market. It may also be that at the present time the government's hope of securing extra production rested mainly on assuring farmers of the largest possible income in the year immediately ahead rather than a more even income over the longer run. Again part of the reason may be that the particular products turned out in Britain are not readily storable or that storage space is not sufficiently adequate. Or again it may be that any such plan will have to await the formulation of a more permanent marketing program. In any case the fact remains that no special attempt has been made to ensure that incomes as well as prices are kept reasonably stable. In particular there is apparently no regular means of providing for a farmer whose production has fallen down seriously through no fault of his own. To such a farmer a guaranteed price, no matter how high, is of little value.

In the second place, the government's ability to vary a fixed price is supposed to make it possible to secure any desired degree of

flexibility in production. In this connection, however, recent experience in many countries including the United Kingdom has made it reasonably clear that there is likely to be considerable government uncertainty regarding the degree of farmer reaction to a given price change. The response is likely to depend on several factors besides the price change itself. One such factor is the extent to which expanding or contracting the production of a particular commodity may unbalance the general production program. Another concerns the extent to which production resources are already fully taxed at the time that an extra price inducement is offered. Still another and very important factor is the general level of farm prices at the time that a particular price change occurs. Generally speaking a given price change in either direction will exercise a far greater effect on production when farm prices in general are low than when they are high. Moreover, when prices generally are low, a further drop in a fixed price designed to discourage production might produce the very opposite effect.

That it is difficult to find the exact price change that will result in a desired change in supply is clearly shown by the actual experience in England to date. The mere fact that, in order to obtain the desired output, it has been necessary to supplement the price inducements with production directives is, to say the least, significant. The decision to incorporate in the 1947 Agricultural Bill provisions for controlling the amount of tillage is equally significant. While the British Minister of Agriculture has recently expressed the hope and belief that a better understanding of supply-price relationships would come with experience and that this would eventually make resort to production directives unnecessary, the possibility that these relationships will ever be more than partially understood seems fairly remote. This, of course, is not to deny that price fixers can exercise very considerable influence over production trends.

A rather different but related point concerns the specific purpose to be served by the fixed prices. If a price is set at a given level simply in order to induce a desired change in supply, there would seem no reason for assuming that it will bear any close relation to the price required to ensure farmer prosperity or guarantee stability. It will, in fact, be determined primarily by demand considerations rather than those relating to supply. This may not give rise to any particular problems so long as all prices are relatively satisfac-

tory to the farmers. If, however, all prices become less satisfactory the farmer organizations are likely to object violently if a price-fixing authority attempts to reduce a particular price just in order to reduce production by a certain amount. If, in these circumstances the authority is forced to compromise by fixing the price more in line with production costs, part of its ability to bring about specific changes in supply by making specific price changes will have disappeared. The question, therefore, is whether it will be possible in practice to set prices that will serve two competing purposes at one and the same time. In other words whether it is possible to secure stability along with adjustments in the use of resources may be open to some doubt.

In regard to the prices set there is a further matter that may give rise to some difficulty. While the government has promised stabilized prices there may be some difference of opinion as to what a stabilized price really means. At the most the government is likely to regard it as a price that will maintain the present average level of farm incomes. On the other hand the farmers may look upon it as one that should remain at or near the existing level. British farmers, if they run true to the past performance of their fellow farmers in some other areas, are likely to demand that prices be not only stabilized but that they be stabilized at a high level. If the level of the stabilized prices is to be such that it will result in stable net incomes, then the prices must fall as productive efficiency and therefore production itself increase. As efficiency increases cost per unit and therefore price required should fall. In other words, farm income (so far as it depends on price) will tend to be the same regardless of the degree of productive efficiency. This raises the interesting question as to whether farmers are likely to keep on trying for ever greater efficiency when they discover that they can expect no extra income for so doing.

In connection with this matter there are several strong reasons why the level of the guaranteed price must fall as productive efficiency increases. One reason is that, over the long run at least, the British people in general will agree to maintain farm prices at stable levels only if they can receive the benefit of increased efficiency in return. And they can only receive that benefit in the form of lower prices. A second reason is that it will probably not be possible for the British economy to continue operating effectively enough for British goods to compete pricewise in world markets

without the advantage of relatively cheap food. Incidentally, high-priced food would tend to raise the prices of things which British farmers must buy. In the third place the government is obviously assuming that farm prices, though guaranteed and stabilized, will be capable of being reduced as time goes on. Were this not so it would not now be willing to provide the price and market guarantee. After all there must be some quid pro quo. Then again, apart from the requirements for international competition, it would seem that the British people simply could not afford to consume the amount and kind of food that the current nutrition program calls for unless prices were reduced. While it may be true, as some believe that British food consumers could and would continue their present scale of food purchases if the consumer subsidies were removed this could not be true over the long run. At the most it could only happen so long as the present relationship between the supply of consumer purchasing power and the supply of consumer goods and services in general continued. Finally the guaranteed prices would have to fall if the United Kingdom was to be prepared to permit anything like free entry to farm imports. Sooner or later food supplies from abroad will become available at much lower prices than those now prevailing. If and when this happens it will be impossible for the British government to guarantee prices above the levels of imported supplies. In this connection the statement of the Minister, Mr. Williams, to the effect that when or if significant supplies of outside oats became available, it would probably be necessary to either lower the guaranteed price or reduce the amount of the product to which it would apply is extremely significant. This would indicate that in the long run it will probably be necessary either to get British farming efficiency up and British guaranteed prices down to the world level or to arrange for higher world prices by some sort of international agreement. The really big question is can British farming become sufficiently efficient fast enough. One might add that unless, as time goes on, the government drops its guaranteed prices to or near the world levels, there will be no way of knowing whether British farmers are efficient enough to compete with outsiders or not. Indeed the general presumption will be that they are not. When one turns from the general matter of price considerations to the provisions aimed at efficiency, there are several points that seem worthy of special mention. To begin with, assuming that efficiency does increase, it must do so at a gradually

decreasing rate. The more slack is taken up the less will remain to be taken up. There will therefore come a time when the state can expect no greater efficiency. What will the state do then? Will the British people be willing to continue guaranteeing stable prices when there are no significant results in the way of extra efficiency to get in return? While such a question may suggest a problem too remote to warrant serious consideration at the moment, it is submitted that it is rather fundamental in character.

A second main point is that the program under discussion seems to place an unwarranted degree of reliance on the wider spreading of scientific knowledge as a means of getting greater efficiency. While much of such knowledge will help, efficiency depends also on the inherent managerial capacity of the farmer, on the amount of capital available, on the extent to which it is technically possible to obtain the optimum kind and amount of land, and on the ability to secure and make effective use of modern buildings and mechanical equipment. The problem is technical and financial as well as educational. Moreover you may have noted Mr. Duckham's statement to the effect that efficiency per man and per acre is already at a high level. This would seem to suggest that what is mainly needed is greater efficiency per unit of capital. Inefficient use of capital is probably mainly due to the fact that many of the concrete forms which capital takes are unsuited to modern farming requirements. And this, in turn, is traceable to the fact that the tremendous amount of new capital funds required for farm modernization is not available.

Again one cannot help wondering whether the farmers of the United Kingdom will ever be able to achieve the desired degree of efficiency so long as emergency conditions make it necessary for many of them to undertake a type of farming that is inherently unsuited to their soil and climate. In many cases the kind of farming being carried on to-day is not the kind for which the country and people are inherently best fitted. Despite this fact, because of the prevailing food demand and exchange situation, it will apparently be necessary to use these farms for several years at least in a way that is out of line with the principle of comparative advantage. This simply means that the special conditions prevailing will make it impossible to produce the things that can be supplied with any real degree of efficiency. While the emergency is the very period in which it is most necessary to achieve the desired degree of

efficiency it is also the period during which it is most difficult to do so. It is for this reason that the degree of permanency of the emergency period is so important.

Then again it seems hardly to be expected that the farmers who are unpaid members of the County and district Agricultural Executive Committees can devote any large part of their time to the work of the Committees indefinitely or in other than emergency periods. Any extensive participation would undoubtedly be reflected in a lessening degree of efficiency on their own farms. In the same way it is hardly to be expected that they will interfere seriously with their neighbors' methods. Indeed it is not anticipated that the threat of dispossession will contribute in any major way to improved efficiency. The very fact that the number of farmers dispossessed during the entire war period made up only 0.7 percent of the total indicates quite clearly that only secondary importance is attached to the compulsory provisions. The main reliance must and will be placed on economic inducement and intelligent persuasion rather than on compulsion.

It might also be suggested that any general policy aimed at economic improvement of agriculture which concentrates on the possibilities of securing efficiency in the realm of farm production and neglects the possibilities of effecting savings in the marketing sphere leaves something to be desired. In fairness, however, it should be stated that the part of the policy specifically designed to improve the marketing methods will undoubtedly be instituted at a later and more opportune date. In view of this probability the failure to incorporate it as part of the general agricultural policy represented by the 1947 Agriculture Bill may, to some extent at least, be overlooked.

There are one or two remaining comments of a general nature that should probably be made. For one thing it would seem that the possibilities of assuring markets at reasonable prices will depend very considerably on the extent to which it is found possible to concentrate on production of those commodities which have the most elastic consumer demand. In the second place it will probably not be possible to get too much in the way of agricultural stability by relying on any purely agricultural policy. Stability in agriculture, in Britain in particular, must assume continuance of a reasonable level of industrial stability. The future prosperity of British agriculture will depend mainly on the maintenance of stable condi-

tions of employment in the United Kingdom and on the foreign exchange situation. Finally, one might suggest that in the modern world no industry or nation can in the long run plan in isolation. Plans for individual industries must be integrated internationally. This means that the smoothness with which the plans for readjusting the agriculture of the United Kingdom are brought about will depend, in the last resort, on how successfully British agriculture can be fitted into the international framework. It is only necessary to add that these fundamental truths are very fully appreciated in the country under discussion.

THE INTERNATIONAL FEDERATION OF AGRICULTURAL PRODUCERS*

JOHN H. DAVIS

National Council of Farmer Cooperatives

FOR many years the four national farm organizations—The National Grange, American Farm Bureau Federation, National Farmers Union and the National Council of Farmer Cooperatives—have been interested in the promotion of increased world trade—particularly increased farm exports. Evidence of this has been shown by the interest and positions taken by these organizations with respect to such legislation as the McNary-Haugen plan, the various export debenture plans, the reciprocal trade proposals and the proposed tariff bills. More recently World War II has called to our attention the importance of international agricultural policy.

At the same time, there has been a growing concern on the part of the farm organizations regarding the attitude of the U. S. government, particularly the State Department, on matters affecting foreign trade of farm products. This is particularly true with respect to the activities of the State Department in planning the Food and Agriculture Organization (FAO) and the International Trade Organization (ITO).

In planning and conducting the Hot Springs Conference in 1943, out of which grew the plans for FAO, the national farm organizations of the United States were ignored and evaded by the U. S. State Department and the President. The result was concern on the part of farm organizations as to the future of American foreign policy with reference to agriculture.

Shortly thereafter the U. S. State Department announced plans for an international trade organization, the principal objective of which was to reduce trade barriers. Again farm organizations felt that the State Department evaded them in evolving plans for the ITO. The result was a suspicion that agriculture might receive the brunt of trade barrier reductions as compared with other forms of American business. The position of the farm organizations was not that of opposing the main features of the FAO or the ITO

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programs, but of keen resentment over the way they had been ignored and evaded by the State Department.

Into this setting in March, 1945, came a delegation from the National Farmers Union of England and Wales, making a goodwill tour of Australia, Canada and the United States. During the course of their visit to the United States, James Turner, chairman of the delegation, proposed to the U. S. farm leaders the formation of an international organization of national farm organizations for the purpose of assisting, guiding and influencing farm policy at the international level. In brief, the proposed international organization would bear the same relationship to government in the international field as do national farm organizations at the national level.

In the fall of 1945 the National Farmers Union of England and Wales invited the interested national farm organizations of the world to meet in London in May, 1946, to discuss agricultural problems and the formation of an international producer organization. All four of the national farm organizations of the United States accepted the invitation. At this conference there was created a provisional organization to function for one year with headquarters in London, known as the International Federation of Agricultural Producers.

In May, 1947, the members of IFAP met in Scheveningen, Holland, and organized IFAP on a permanent basis, retaining the name "International Federation of Agricultural Producers." The headquarters will remain in London at least for the current year and probably until the permanent home of FAO is established.

Organization of IFAP

IFAP at present has members from 17 Nations. Four organizations from the United States hold direct membership—namely, the National Grange, American Farm Bureau Federation, National Farmers Union, and the National Council of Farmer Cooperatives. The organizations from any one nation together have one vote. If unanimity is lacking within a national delegation, the vote may be cast on a fractional basis. Major policy is to be formed at an annual meeting or "council" of the member organizations. In the interim between annual meetings, action may be taken within the framework of established policy by the executive committee. The presi-

dent is elected annually by the members. At present this position is ably filled by James Turner of England.

IFAP as a farm organization serves as a conference body; it serves as a mechanism for bringing interested groups together on mutual problems; it serves as a clearing house and contact office for its members; it serves as a mechanism whereby international farm policy can be crystallized and implemented. On matters where there is virtually unanimity of policy, IFAP may represent its members or speak for them. On matters where there are differences of opinion between members, IFAP can be of greatest service in helping its members or groups of members to put forward their own views.

IFAP is beginning its operations on a modest budget of about \$75,000 per year. Of this not more than 25 percent can be assessed against the members of any one country.

IFAP Annual Conferences

The two annual meetings of IFAP have, I believe, gotten the organization off to as good a start as could be expected. They have been attended by delegates and observers from some 30 nations. The spirit of the meetings, which is perhaps the best barometer, has been excellent. Committee assignments, in general, have been taken seriously. There has been a complete absence of underhandedness or intrigue or petty politics. On the whole the farm representatives of the world speak a common language despite their use of different tongues. With minor exceptions the farm leaders of the other countries of the world are seeking a basis for a sound agriculture which for the long pull will be self-supporting without charities from other countries. Significant in this connection is the fact that at the 1947 meeting the principal subcommittee of the policy committee was one to pursue methods of farmer self-help through cooperation. Approximately one-third of the policy report dealt with the subject of cooperative self-help. And, may I add, that the initiative for such action did not have to come from the United States.

In contrast to this the FAO meeting at Copenhagen in 1946, which I attended as a member of the U. S. delegation, concerned itself primarily with governmental devices of international assistance to world agriculture—particularly through a world food

board. I do not cite this fact to be critical of FAO but to emphasize a fact which I believe is true; namely, that the farm leaders attending the IFAP meeting were thinking more realistically and practically in terms of maximum farmer self-help than were the government representatives who headed the various delegations at the meeting of FAO.

In saying this let me explain that the U. S. delegation did not approve the plan for a world food board, but instead submitted a plan for coordinated national assistance in the form of education, technical assistance, and sound financial assistance supported by international commodity arrangements if and when such may become necessary.

At the beginning of this discussion I mentioned the refusal of the U. S. government to work with farm organization leaders at the Hot Springs conference or at the ITO conference. At the recent FAO conferences such policy has not been pursued. On the contrary, at the FAO conferences at Quebec, Copenhagen and Geneva, representatives of each of the four national farm organizations, as well as the ranking members of the agricultural committees of the House and the Senate, have been included on the U. S. delegation. Personally, I feel this policy has been wise. It has resulted in a better understanding between the administrative departments of government, Congress, and farm leaders. Not only this, but I believe a sounder policy has been evolved as the result of the pooling of the combined information and judgment of the several interests comprising the U. S. delegation.

At the IFAP conference the representatives of the four U. S. farm organizations worked together as a team. The four organizations are in fundamental agreement on most all issues which arose at the conferences. Because of the numbers of committees it was not possible for each organization to be represented at all committee meetings. The plan followed was for those attending to represent the entire American delegation. This practice was facilitated by daily early morning caucuses by the U. S. delegates at which the issues of the day were anticipated and the U. S. position determined. As a by-product of this teamwork on international problems, I believe that the farm organizations of the U. S. are gradually learning to work together with increased confidence on the domestic front.

An Appraisal of IFAP

It is extremely difficult to appraise the value of a new organization such as IFAP. Obviously much will depend upon the ability and statesmanship of its officers and policy makers in the initial years. My own opinion is that IFAP's most important role for the present is to promote understanding and friendship between the farm leaders of its member nations. This can be done by conducting an annual meeting of members, by arranging and assisting committees composed of representatives of members to study common problems, by facilitating concerted action among nations on common problems, by advising and conferring with United Nations and its component organizations—particularly FAO and ITO. If this is done, gradually a better understanding and a greater trust will develop among the farm leaders of the nations of the world. If IFAP can keep the emphasis on points of agreement rather than disagreement, gradually the area of agreement developed in 1946 and 1947 can be broadened. Probably IFAP's greatest danger will be the desire to want to move too fast and in doing so will bring about a cleavage among its members.

I doubt that in the near future the farm organizations of the U. S. will expect IFAP to try to influence United Nation's policy in their behalf. I believe farm organizations can be more effective in influencing the position of our State Department and of U. S. representatives at United Nation's conferences than by trying to influence United Nation policies directly or through an international organization. It may be that at times such a course can be pursued multilaterally as well as unilaterally. That is, farm organizations of several countries may agree on a policy and then each go home and seek to establish such policy by working through the U. N. representative of their respective nations. Of course, should the members of IFAP be unanimous on a subject, then IFAP could itself take the initiative in conference and in negotiation.

As I said earlier, the delegations of the different countries have seen different possibilities in IFAP. Perhaps the majority at the first conference had the hope that the federation could become a hard hitting farm organization which could make the units of the the United Nations toe the mark in complying with the wishes of the farmers. At the recent conference there was a desire on the part

of some delegations to have IFAP demand that the international wheat agreement draft of April 23, 1947, be ratified by the nations of the world. Other countries have seen in it the hope of implementing an international new deal for world agriculture based on a worldwide program of aid flowing from so-called surplus countries to needy countries.

However as discussion progressed at the conference, there was a gradual shift of emphasis from direct action through IFAP to collaboration through IFAP supported by concerted action at the national level. I think this has been a wholesome development in that it permits IFAP to keep its major emphasis on points of agreement. To put it another way it permits IFAP to avoid choosing between its members when they cannot all agree. For emphasis I repeat that IFAP's greatest job in the near future is to serve as a media for promoting better understanding among the farm organizations of the world. If it can succeed in this, probably it may ultimately lay the basis for an international farm organization of the action type if conditions of the future show the need for it.

Today the world is still experimenting with international government. The high hopes expressed for United Nations at the time of the San Francisco conference are as yet far from realization. I have the feeling that the common people of the world want to live together in peace, but that the governments of many parts of the world do not honestly express the desires of their people. Possibly through voluntary organizations of the people, such as IFAP working in cooperation with government, we can come closer to our goal.

STABILIZATION OF THE GENERAL PRICE LEVEL*

J. CARROLL BOTTUM
Purdue University

THE proceedings of this Association have long indicated its interest in a more stable price level. It has been recognized that a more stable price level is essential to the prosperity of agriculture and all the other segments of the economy. When a material change in the general price level occurs, the price of some products changes more rapidly than others. This results in serious dislocations of the economy, particularly when the price level declines. Farmers more than any other large group are vitally affected by a change in the general level of prices. When prices in general decline, the prices of farm products, along with other raw commodity prices, decline more rapidly and the most. Commodities used in farm production fall more slowly, resulting in a price disadvantage for agriculture. If the price level continues on the lower plane, farm commodity prices and items used by the farmer in production are slow to come into adjustment again. With farming, a business of slow turnover and narrow margins, such price disparities place agriculture in a serious financial condition.

It is realized that greater stability of the price level will not solve all of our economic ills, but it is a prerequisite to developing workable agricultural programs. It is likewise realized that many of the war-created inequities in the price structure will have to be corrected and price relationships brought into a more normal balance before a program of greater stability can be made effective. However, now is the time for the nation to adopt such a program in order to avoid unreasonable price fluctuations in the future.

Wars are the great disturber of prices. There does not seem to be any way to fight a war with stable prices. Therefore, any price stabilization program would likely be disrupted by a war.

Perhaps a word of explanation of why the writer of this paper is dealing with this most involved subject is in order. During the year of 1945-46 I was on leave from Purdue University with the Research Department of the American Farm Bureau Federation. The American Farm Bureau Federation has long recognized the

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importance to the American farmer of a more stable price level. They asked the Research Department to make a study of what policies they might support that would add to the greater stability of the general price level. After reviewing the literature, an outline setting forth the various approaches to the problem was prepared. Conferences were then arranged with various groups of economists at a number of Universities, with the Federal Reserve Board, the Committee for Economic Development, The Bureau of Agricultural Economics, and with individual authorities to consider the merits of these proposals along with any others that might be suggested. A total of some forty authorities were contacted. These conferences were arranged and attended by Dr. T. K. Cowden and myself. Joint meetings were also held with a committee from the American Farm Bureau Federation Board and certain authorities. However this paper represents the writer's personal opinions gained from this study and these contacts. The official position of the American Farm Bureau Federation may be found in their last year's resolutions.

The proposals for adding greater stability to the general price level may be grouped under three main headings: first, those dealing with the control of money and credit; second, those dealing with changes in the gold content of the dollar, exchange rates, or changes in the commodity or commodities back of the dollar and third, those centering around federal fiscal and budgetary policies. These three approaches should not be considered necessarily as alternatives. They are all inter-related, and such differences of opinion that prevail as to the effectiveness of each approach rest partially upon the degree of emphasis the different groups of individuals would place upon each proposal. Those emphasizing the fiscal and budgetary approach likewise recognize in most cases the importance of a coordinated attack from the other standpoints. In the following discussion each of these approaches is presented, together with a proposal for coordinating the monetary and fiscal policies with the international financial policies under one authority.

There are also a number of other factors significantly related to these three main divisions, such as those centering around international trade relationships, antimonopoly programs, and wage policies. The international trade phase will be treated briefly later. An aggressive and intelligent program to control monopoly,

especially monopolies that prevent price adjustments is highly desirable. The adoption of a wage and labor policy which recognizes the relationship between productivity and prices is also essential.

Although the use of new governmental techniques is involved in the proposals for adding greater stability to the price level, it should be recognized that control of the monetary, credit, and fiscal policies should rest in the hands of the Federal Government, as is prescribed by the Constitution. Therefore, the problem is not one of delegating additional authority to the Federal Government in new areas, but rather one of reshaping and coordinating the policies in the field in which government policy now largely prevails so that they will more definitely contribute to a stable price level. Unless some success is attained in adding greater stability to the price level and the general economy, the alternative is likely to be attempts to control many individual commodity prices through more detailed types of regulation and regimentation. Governmental controls in the monetary, credit, and fiscal policy fields have the advantage of being less personal. They do not require special detailed programs that reach out and control the activities of individual farms and businesses.

To some this approach may appear as though one is proposing getting on all the horses and riding off in all directions at once. However, the solution in the judgment of most authorities contacted rests on riding more than one horse and in keeping all the horses going in the same general direction. Very few believe there is any automatic formula for maintaining a stable price level. It should be pointed out that with our present knowledge, the possibilities, likewise, in this area appears to be more of lessening the ups and downs of general price movements than of bringing about complete stability.

Money and Credit Controls

Before the passage of the Federal Reserve Act in 1913 one of the major problems in the field of money and credit was that of supplying adequate credit for all sections of the country, particularly at certain periods. With the passage of the Federal Reserve Act the problem shifted from one of a lack of credit to one of credit control. Under the Federal Reserve System the expansion and contraction of credit has been to a large extent dependent upon the decisions of the millions of bank borrowers and the thousands of

banks in the nation. The Board of Governors of the Federal Reserve System has used in the main four methods to influence this expansion and contraction of credit, namely: reserve requirements, the discount rate, open market operations, and persuasion. Certain types of selective credit controls have also been used more recently.

These controls have not proven too effective, and as a result a number of monetary economists have proposed that the volume of credit should be regulated by some prescribed means to the greater interests of national welfare, instead of leaving the changes in volume of credit to the individual decisions of thousands of banks and millions of borrowers. They have felt that the changes in volume of credit, as they have occurred in the past as a result of this policy, have tended to add to the instability of prices rather than to increase their stability.

The proposal of the late Professor Irving Fisher, of Yale, for 100 percent reserves has been one of the most widely publicized suggestions for controlling the volume of credit. Many competent monetary authorities agree with Professor Fisher to the extent that they believe the shrinkage of bank credit from 1929 to 1933 contributed to the intensity of the depression. They do not say it was the cause of the depression. Rather, they make the point that after the depression was under way, the shrinkage of some eight billion dollars in demand bank credit acted as a further contributing force to depress prices. The Federal Deposit Insurance Corporation, which insures individual bank deposits up to \$5,000, should be a factor in helping to avoid such a decline as occurred in bank deposits between 1929 and 1933.

War financing to the extent that it has been carried on through the banking system has automatically resulted in the banks holding a large amount of government securities which makes it more feasible to move in the direction of 100 percent reserves than before the war. The holdings of government securities by all banks at the end of 1945 equalled approximately 61 percent of their total deposits and approximately 96 percent of their demand deposits.

During the war-financing period and since, the Federal Reserve banks have stood ready to purchase the government's bonds from the banks when they desired to increase their reserves. This program has resulted in maintaining relatively low interest rates. As long as such a program is carried out, there is practically no limit to the volume of credit expansion. Unless direct controls are to be

maintained on prices, then, it seems that more effective control of bank credit must be regained by the Federal Reserve System. Greater control of bank credit is important not only to avoid undue expansion in periods of high business activity, but also to avoid undue contraction in periods of low business activity.

Proposals have been made for obtaining this control of further credit expansion and at the same time moving in the direction of 100 percent bank reserves. This proposal calls for allowing federal bonds to be held by banks as legal reserves and in turn raising the legal reserve requirements of the banks. Under such a program the bonds now held by the banking system would be stamped or exchanged for new bonds, and such bonds would be eligible for legal reserves with the Federal Reserve banks at any time. Raising the reserve requirements would offset the increase in reserves thus created. This would make it possible not only to check undue bank credit expansion, but also to avoid contraction during less favorable periods.

Federal securities held by the general public then could be allowed to seek their normal interest rate, or at least not be supported above par. Allowing these interest rates on the publicly held bonds to rise and the value of the bonds to decline to a little below their par value would induce more of the public to hold them, rather than shifting them to the banks and increasing the inflationary pressures. A corresponding rise in the interest rates on time deposits might also occur. Such a change would also be an inducement to keep funds in time deposits, rather than shifting them to areas that would contribute to inflation.

A number of economists believe continued attention should be given to the development of more selective types of credit controls. The present policy relative to loans on securities is an example.

A number indicate the desirability of the policy of limiting installment buying during periods when demand is excessive and of allowing more freedom in installment buying during periods when the demand is low. Others would direct all efforts to controlling over-all bank credit expansion, with the assumption that the overall credit situation would control all of the various types of credit sufficiently. There seems to be little difference of opinion on the theoretical desirability of controlling the volume of installment buying from the standpoint of adding greater stability to demand and prices. There is a recognized important social question involved in limiting

the purchasing power of those least able to compete during periods of excessive demand by restricting installment buying in such periods. We will take steps to avoid a depression but are hesitant to take steps to avoid a boom.

Attention has been directed to the inflationary effect of large purchases made possible in the United States by the granting of foreign loans to the various nations and the rapid liquidation of the dollar balances accumulated during the war. Such purchasing power competes with the domestic purchasing power and adds to the already excessive demand existing under present conditions. Some felt that consideration should be given to coordinating and timing the demand so created by the foreign loans as to limit as much as possible the undue pressure on prices during periods of excessive demand such as we are now experiencing, and to increasing demand during periods of depression.

*Varying the Gold Content of the Dollar, Exchange Rates,
and the Commodity-backed Dollar*

During the 1920's and early 1930's much emphasis was placed in certain quarters upon the proposal of varying the gold content of the dollar as a means of stabilizing the general price level in the United States. The theory of this group was that gold has value in the world markets the same as wheat or any other commodity and that if the United States dollar represented a smaller quantity of gold, it would be worth less and prices would rise. If the quantity of gold was increased in the dollar, it would be worth more in terms of other things and prices would fall. Therefore, a stable price level could be maintained by varying the gold content of the dollar.

Many of the economists consulted took the viewpoint that this method of stabilizing prices might be reasonably effective for a small country with an appreciable amount of trade. However, the majority did not feel that such a procedure could be followed or that it would work successfully for the United States. They believe that we now represent such a large proportion of the world's production and of the world's trade and hold so much of the world's gold, that any change in the gold content of the dollar would likely result in a marked change in the value of gold itself. As one economist put it, "The United States dollar has value in the world today because of the amount of goods which it will supply, and gold has value partially because of the number of dollars a given amount of

gold will buy, rather than the dollar has value because it gives title to a certain amount of gold." In other words, gold is partially in the same position as silver, its price being somewhat dependent upon the monetary price the United States government establishes for it.

Dr. Charles L. Prather in his book, "Money and Banking," perhaps sums up the present thinking of a large group of monetary authorities relative to the position of gold in determining prices.

In every country in the world, the quantity of gold money is but a small percentage of the total volume of currency and bank credit commonly used as media of exchange. The purpose of the gold standard is to limit fluctuations in the value of money, but, to an increasing degree, the volume of credit and currency now affects and perhaps even fixes the value of gold. In other words, the tail now wags the dog. This situation demands that more attention be given to conditions which determine the supply of and the demand for money and bank credit, but it does not mean that the "baby must be thrown out with the bath water."

. . . Businessmen want a fool-proof and knave-proof monetary system without knowing exactly what one is, but they usually think of it in terms of the gold standard. Irrespective of its merits, no type of standard will be successful unless there is general confidence in it. The gold standard has the confidence of business leaders and bankers. . . .

This group would further point out that from the experience with the gold standard during the interwar years and with the establishment of the present Monetary Fund, it would not seem likely that a rigid adherence to any gold price ratio or fixed exchange rates will be allowed for long to depress world price levels. On the other hand, it does not seem likely that the United States, as a great creditor nation and center of trade, can go so far as attempting to stabilize its internal prices through the procedure of changing the quantity of gold in the dollar and of constantly varying exchange rates. A nation such as the United States, to which a major share of the international dealings of the world gravitates and to which many exchange rates are tied, is in the least favorable position of all countries to use this procedure. Changing the gold content of the dollar and the exchange rate to avoid undue pressures from international prices is one thing, but using them as a means of controlling internal prices and offsetting other factors in the economy of the United States is quite another.

The majority of those contacted look upon the role of gold in the postwar period as one of stabilizing and providing for orderly international exchange, rather than being used as the dominant

factor for controlling the internal price levels of the major nations. This statement recognizes that there is a close alliance between stability of exchange and stability of the internal price levels of the various countries. However, in stabilizing the internal price level of a country other factors, such as fiscal policies and many others, must be taken into consideration.

In light of the discussions and viewpoints expressed, it would appear that consideration should be given to authorizing a central monetary authority to vary the gold content of the dollar within certain prescribed limits when it was believed that it would add stability to prices. Such changes should be made in cooperation with officials of the Monetary Fund. My experience in working with farmers leads me to believe they would be hesitant to give up the idea that we might have to devalue again at some future date. In my opinion we shall probably devalue at some future date. The history of other nations would bear this out.

In view of this agreement and suggestions of the individuals consulted, it is suggested that a central monetary and fiscal authority, charged with additional measures for stabilizing prices, should be responsible for making recommendations and taking action in this area.

This authority should have the power, under proper prescribed rules and limitations, to adjust exchange rates when it is believed they would contribute to the stability of the desired level of domestic prices.

Certain individuals, including Benjamin Graham of New York and Professor Frank Graham of Princeton, have endorsed a commodity-backed dollar and made definite recommendations for carrying out such a program. More recently such a program has been recommended by both the Messrs. Graham and a number of other prominent economists on a world basis. There are some who would maintain that we have three basic problems in stabilizing prices and the general economy—the maintenance of the prices of basic commodities, the support of the capital goods industries, and the long-time secular trend in prices. While the Graham plan for domestic stability is not without merit, there are many difficulties in putting it into practical operation as compared with other programs for domestic price stability. The storage and stability concept does appear to have more merit, when considered on an international basis, as an alternative to cartels and commodity agreements.

Fiscal and Budgetary Policy

The majority of the economists consulted felt that fiscal and budgetary policies will be the dominant factors in maintaining a more stable price level and the general economy in the postwar period. The federal budget in 1946 was about 25 percent of the national income as compared to 5 percent during the nineteen-twenties. It is generally recognized that in order to obtain greater stability of the price level and the general economy at desirable levels, it is necessary to obtain greater stability of the over-all demand. The level of demand for any given period depends upon total spending, which is of two kinds, for consumption and for investment. What people spend on consumption makes demand. What they save makes demand only as it is invested, which means not buying existing bonds or shares of stock, but expenditures which add to the actual capital facilities of a nation, such as factories, machinery, ships, or increasing the stocks of raw materials. One of the major causes of variation in over-all spending is the variation in expenditures in the investment field. In 1927, 11.1 billion dollars were spent in this country on new construction, and by 1933 this had fallen to 2.4 billion dollars. It appears that a nation with a high standard of living, such as the United States, where a relatively large proportion of the productive resources is devoted to the production of durable consumer goods and to new investments, is subject to greater demand changes than a country with a lower living standard which currently consumes a high percentage of its total annual production.

One of the problems in connection with this variation in investment rests with the fact that the decision to save is often made by one group of people, and the decision to invest by another. If the people of this country decide to save ten billion dollars, and a corresponding group decides to only invest five billion, then the spending stream or demand is reduced by five billion and the national income falls by five billion dollars. The total demand includes the demands of 35 million households, millions of businesses, and thousands of government bodies, federal, state, and local. As this demand is dependent upon many factors, it cannot be turned off and on like water. But the operation of the federal government exerts a continuous influence upon the level of this aggregate demand, and it is proposed that the federal fiscal policy be handled in such a manner as to add greater stability to demand.

The management of the national debt and the governments'

taxation and expenditure policies all affect the over-all demand and expenditure stream of the nation. Through its public outlays and expenditures the government is constantly putting cash into the hands of the public; and through taxation and bond sales taking it away. To the extent that the funds for expenditures are obtained by deficit financing through the sale of bonds to the public, there is no corresponding decrease or increase in net Public Purchasing Power.

If the deficit financing is carried on through the banking system, the public's bank deposits are increased. Since no corresponding decrease is caused by taxation and bond sale this process results in a net increase in Public Purchasing Power. The transfer of funds by these processes to different groups in society, however, may materially affect the current expenditure stream of the nation. When federal taxation and expenditures are brought into line so that payments may be made on the national debt, whether these payments go to pay off federal obligations held by the banks or by the public is likewise important in affecting the expenditure and investment stream. A shift of the debt from the public to the banks, or vice versa, also has important effects upon the purchasing power of the public.

Increasing the Flexibility of the Tax Program

While the importance of making payments on the public debt is well recognized, the maintenance of the national economy at reasonable levels is even more necessary. With the recognition of these factors and the increase in the size of the federal debt and budget, it has been recommended that the fiscal policy be directed toward increasing the stability of the economy by adopting a long-time policy for the reduction of the national debt, and at the same time introducing greater flexibility in the tax program in order to stabilize the economy through various measures. It has been proposed that Congress enact the necessary legislation and the Bureau of Internal Revenue prepare the necessary machinery so that personal income tax rates could be revised promptly if and when necessary, within certain limits. It has also been proposed that corporation taxes should be put on a "pay-as-you-go" basis, the same as individual taxes are now, and later made flexible to encourage investments in depression periods.

Under such a procedure tax returns would be increased during

inflationary periods, or when the demand stream was large relative to the supply of commodities available or the productive resources. When demand fell off the rates of taxation would be decreased. Thus taxation would be used as a counter business cyclical force. The object of passing the power to change rates within certain limits to the Treasury is to speed up the rapidity with which the counter-cyclical forces could be used. If it were necessary for Congress to take action, considerable time would necessarily elapse between the time when such action should be taken and when the change would become effective. Timing is important if such flexibility is used. The real problem lies in encouraging private business. Tax adjustments and government spending should only be stop gaps.

While most individuals would agree that theoretically these adjustments in tax rates are desirable from the standpoint of counter-acting the instability of business activity, some question the unsettling influence of varying tax rates upon corporations and business. They argue that with the maintenance of stable rates considerable variation in tax collections would occur because of the lower taxable incomes in periods of low activity and the much higher taxable incomes in periods of high business activity. Certainly the maintenance of a stable rate would be a marked step over our past policy, when we increased the rates in periods of low business activity, and decreased them in boom times. It has also been proposed that special tax adjustments be made in times of low business activity to encourage new investments on the part of corporations.

Prompt payment of tax refunds would be necessary under any flexible system of taxation used to steady the economy. Under present procedures considerable delay occurs, which partly offsets the automatic reduction which occurs with changes in income and with any change that might come through the introduction of change in rates.

Some individuals put forth the view that the problems of introducing flexibility in the taxation rate are so great that they favor balancing the budget in boom and normal times at above requirements, and in periods of low national economic activity turning to deficit financing through increased governmental expenditures. From the practical standpoint, much can be said for this view. The problem of transferring from Congress to an agency of government

the right to vary taxation rates, even within limits, is a very practical political problem. On the other hand the problem of getting any practical governmental spending programs into operation rapidly are also difficult. If such powers are not transferred to an agency of the government and if the changes are dependent upon congressional action, properly timing these changes would be very difficult.

Flexibility of Government Expenditures

During booms or periods when demand is excessive, government expenditures should be reduced to a necessary minimum. When demand and the level of business activity are low, it is proposed that governmental expenditures be increased. The public has come to look upon increased government expenditures as the means of meeting unemployment; therefore, the question of whether this method should be used to combat unemployment and stagnation in business is probably academic. The real questions are at what stage this procedure should be used, and how and in what areas should the expenditures be made.

The volume of new federal construction should be limited when demand is excessive. Federal grants to states and local governments for non-critical public works should be eliminated during such periods. Local communities also should be discouraged from undertaking unnecessary expenditures when demand is excessive. A large shelf of essential public works should be created which may be developed when demand is deficient. Such demand may be stimulated by federal financing and investment, and through financial inducements to state and local governments.

It has been pointed out that such expenditures should not be used too quickly before other measures have had time to work, but on the other hand increases in government expenditures should not lag to the extent that the economy has fallen too low, or the problem of recovery is too great. State and local government expenditures should be coordinated so that increased spending on the part of the federal government is not offset by actions of the state and local governments. Projects so far as possible should be of the self-liquidating type, and should contribute to the national welfare. The rural electrification project has been cited as an example of this type of project. It is likewise important that projects be selected which interfere as little as possible with private enterprise. Otherwise the unsettling effects on private enterprise may restrict

investments in the private fields and offset the government's spending and government projects.

Certain individuals called attention to the importance of extending the period for which unemployment compensation is paid as a business counter-cyclical force. Government payments to farmers during periods of low business activity likewise act as a counter-cyclical force. Both measures would work as forces to increase the demand stream when it was low.

There seems to be general agreement that if the national economy is to be kept at reasonably high levels, the current expenditure stream and the new investment flow must be kept high, in that income can be no greater than the expenditures. Periods of declining business activity and unemployment occur when new investments decrease. The problem under such circumstances is by some means either to increase the private investments or to take up the slack by government investments. Those approaching the problem from the budgetary and fiscal standpoint take the view that during periods when private investment cannot be stimulated, government investment and deficit financing must take its place. These individuals recognize that this increases the national debt, but place it in second importance to maintaining reasonable employment and national income.

In addition to action in these three fields the Nation should cooperate with the various international organizations to bring about international stability of prices, the orderly adjustment of exchange rates, and foreign trade. Cooperation with the International Monetary Fund and Bank in stabilizing world prices and the orderly adjustment of exchange rates is essential. The volume of foreign loans and the timing of purchases should be coordinated so far as possible with the level of business activity of our internal economy. Consideration should be given to the development of international programs for stabilizing basic commodity prices on a world basis. We should adjust our domestic policies and cooperate with international organizations designed to enhance the exchange of goods and services among the nations of the world upon a self-perpetuating and sound financial basis.

The Coordination of Monetary, Credit, and Fiscal Policy

There is general agreement that the monetary and credit policies of the government should be coordinated. Most people contacted felt that there was a need to establish a monetary authority with

power to coordinate the control of money, credit, and fiscal matters under one authority. Some feel that it would be impractical for the monetary authority to have other than advisory powers relative to fiscal and budgetary policy. The monetary authority should be an independent agency, the members of which should be appointed by the President and confirmed by the Senate. The Secretary of the Treasury and the Governor of the Federal Reserve Board should be *ex officio* members of the authority. In addition to coordinating monetary policy affecting the domestic economy, it should also be the responsibility of this authority to coordinate monetary policies in respect to the administration of foreign loans and actions taken relative to the administration of the International Bank and Monetary Fund.

While the monetary authority should be given broad powers, its policies should be limited as far as feasible by formula. In order to promote a dollar of constant purchasing power, the formula could be based on some established price index. The law creating the authority could direct it to take action when the index reached certain levels—that is, if prices dropped below a certain point the monetary authority would be mandated to bring into operation the appropriate facilities under its command in order to prevent further decline in prices. Likewise, if the price index increased above a certain point, the monetary authority would be mandated to apply such techniques as would discourage further increases in the general level of all prices. This authority would not have jurisdiction over the price of individual commodities, but would confine its operations to the basic underlying factors affecting the general movement of all prices.

It is recognized that there are many administrative and political problems, as well as conflicting interests in developing a monetary authority. This paper deals primarily with the various economic devices which might be used in obtaining greater stability rather than the administrative machinery.

Summary

In summary, the problem of adding greater stability to the price level involves: more controls over the expansion and the contraction of money and credit, the adjustment of the gold content of the dollar and exchange rates in cooperation with other nations when necessary, the management of the debt, the taxation and expendi-

ture policies in such a manner as to add to price stability, and a coordinated economic foreign policy. In order to coordinate and to insure more prompt action in these related fields, a monetary authority should be established with clearly defined responsibilities. I should also like to add that this problem has plagued this nation and other nations of the world for generations. During this last generation I believe we have definitely increased our knowledge of the forces affecting prices. Nevertheless I recognize full well that our grandchildren will be wrestling with this same problem.

EFFECTS OF EMPLOYMENT UPON FACTOR COSTS IN AGRICULTURE*

THEODORE W. SCHULTZ
The University of Chicago

IT must seem a bit old-fashioned to discuss costs. Perhaps it is a longing for the quaint ideas of the past—a nostalgia for the good old arguments over cost of production, comparative costs, opportunity costs, and all their kith and kin. Or is it to escape the realities of the day? What, after all can cost tell us about maintaining high employment and full production? A discourse on full production is so much more modern than is a discussion about costs. It has become fashionable to deal with aggregates—aggregate income, employment, investment, savings, and the like. Aggregate costs however have little or no meaning except when viewed as income. When viewed in relation to competitive prices, they are meaningful but essentially negative in that they indicate certain upper limits to the productive efforts of firms. Full production on the other hand states a desirable goal. It implies a positive objective for policy. It presumably has meaning, and it certainly has wide appeal.

One might ask: Why be concerned about costs if we can achieve full production without doing so? This question can be put more specifically: Does it matter if particular costs are reckoned to be low or high as long as the National Economic Budget reaches, as it did at midyear, a rate of 225 billions, giving us a national income of 200 billions with 60 million jobs, with corporate profits after taxes at 17 billion dollars, and with cash farm income running at 30 billions? Why then focus on cost? After all, one man's cost is another man's income.

The older concern about costs—costs broadly conceived in relation to competitive prices in achieving long-run economic efficiency—gave way during the thirties to concern about income. This change occurred as economic thinking shifted its attention to the causes of mass unemployment. The fuller utilization of resources occasioned by the war and by the pent-up demands since the war, appears to have brought us back to considerations of costs, although not as yet fully appreciated. Fashions do change. But there is a kind of seasonal rhythm in the emphasis that is put upon either

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947.

costs or income, not unrelated to the changing state of the economy. In any event now the season of cost is upon us.

One observes that the transition from a deficiency in the aggregate demand necessary to support the economy at full production to excesses in that demand, like the North Atlantic in October, is often very rough. American agriculture, however, has had good sailing so far, as it usually does during the early stages of a big bulge in the national income. The income from farming has soared higher and faster than have costs in agriculture. Many consumers, however, have already been squeezed by the high cost of living especially those whose income has been less elastic than food prices. Nor does anyone believe, so I suspect, that agriculture will be spared for long as costs affecting agricultural production continue to advance. The real rub will come when farm prices fall from the post-OPA pinnacle to a more normal long-run relationship to other product and factor prices in the economy. It is therefore quite fitting and perhaps really not old-fashioned to enter upon a discussion of cost in agriculture at this time.

I

It is quite evident from the pages of the *Journal of Farm Economics*, and from studies that have appeared in recent years including *The Land-Grant Policy Report* that developments affecting the cost side of agriculture have been, except for some work in farm management, grossly neglected; costs have been over-shadowed by a rapid growth in demand, by inflation and by the price leadership of farm products in the upward spiral of prices. Quite understandable, as a reaction to the depressed thirties, the state of employment has been viewed as the king pin, and many have been of the belief that it provided the necessary and sufficient conditions for an efficient, stable and prosperous agriculture.

We obviously have experienced a remarkable change in economic tempo since 1940: The American economy has shifted from very low to high employment, from about 47.5 to 60 million employed civilians, and a drop in the unemployed from about 15 to 4 percent of the civilian labor force.¹ It is against this background that I offer a few, tentative, reflections on how employment affects factor costs in agriculture. In this paper I am more interested in a meaningful

¹ From Table VII, page 67, of the *Midyear Economic Report of the President*, July 21, 1947, Washington, D. C.

formulation of this problem than in any specific quantitative results.

The economic effects of changes in employment in the non-agricultural sector of the economy are transmitted into agriculture in three ways. One of these is via income because changes in income affect the demand for farm products. We shall call this the *income effect* of employment upon agriculture. Another occurs as a consequence of changes in the cost (per unit) of the products that are produced by the non-agricultural sector that farm people buy for consumption and for production purposes. We shall refer to this as the non-agricultural *product (and service) price effect* of employment upon agriculture. The third of these arises from the effects of changes in wages in the non-agricultural sector on wages and on other factor costs in farming. We shall view this as the non-agricultural *factor price effect* of employment upon agriculture. Furthermore, there are the interactions of these several effects as the economy adjusts in going from low to high employment as has occurred since 1940.

Farmers become aware of these effects by stages. As the national income and employment expand, they first feel the bigger demand, stimulating like a warm spring rain. There is a promise of prosperity in the air. Production plans are revised upward. There soon follows, however, out of the non-agricultural sector a rise in costs as the things farmers buy go up, and there is also the bidding away of some of the factors that farmers use. The awareness of agricultural economists of these stages has followed about the same time-table.

How much do we know about the nature of these three types of effects and their interactions? My belief is very little. We have for the most part neither the analytical equipment nor the data to come up with conclusive answers at this time. We can, however, indicate in a rough fashion certain conditions that are relevant in formulating this problem and the circumstances that appear to exist.

II

On Income Effects. One of the remarkable changes that has occurred in the American Economy since 1940 is the expansion of income. Labor income has risen from about 49.5 billions of dollars in 1940 to an annual rate at midyear of 1947 in the neighborhood of 119.5 billions of dollars.² Even after allowing for the marked ad-

² From the *Midyear Economic Report*, Table III, page 63.

vance in prices, the real aggregate income has probably risen upwards of 50 percent. If we leave aside for the moment labor income and take disposable personal income and adjust for the rise in consumer prices, and for the increase in population, the per capita increase in terms of 1944 dollars has been from 719 to 956 dollars,³ or about 33 percent.⁴

Inasmuch as a substantial part of Chapter III of my *Agriculture in an Unstable Economy* was devoted to an analysis of the role that income elasticity plays in the growth of demand, I shall restrict these remarks to certain of the cost implications of this growth. To avoid the complications that arise from other developments that have occurred, let us simply suppose that the high employment has increased the income per head substantially (say 10 percent) without changing in first instances the general level and the relative position of product and factor prices. For convenience let us take two classes of farm products, namely, Class A, consisting of products with an income elasticity of 1.0, and B with a negative income elasticity of -1.0 . The cost implications are fairly straightforward. Presumably approximately 10 percent more of product A can now be sold at the former price while about 10 percent less of product B will move at the old price. If the price elasticities of the two classes of products are low, the transition adjustments in supply will be complicated by a sharp rise in the price of product A along with a similar drop in product B. In general the cost of resources suitable to the production of A will rise and conversely for those used to produce B. The more specific the resources, the greater the change in cost. Under these circumstances, it follows that the key to changes in factor costs, as always, is to be found in the marginal rates of substitution of the resources involved.

To retrace our steps, then, we began with the effects of an increase in income; we transmitted this increase to demand according to the dictates of income elasticity and we noted that the differential effect upon the supply price is determined by the rates at which resources can be substituted at the margin. No one would contend, however, that it has been possible to observe the fine hand of income elasticity at work in agriculture as a result of the big bulge in

³ From the *Midyear Economic Report*, Table V, page 65.

⁴ This figure, however, overstates the real rise in income to the extent that some goods and services are still unavailable in terms of earlier specifications, that public price control is operative as in housing and more important that private rationing, price control and "gray" markets keep the consumer price index below the level that would otherwise prevail.

national income. The demand for farm products, as of 1947, appears to have expanded by leaps and bounds, far more than can be explained by income effects even if one assumes a relatively high income elasticity for farm products. Nor can one observe any appreciable difference between those farm products presumed to have a low and those having a high income elasticity. The reasons for this failure to observe these income effects are, however, fairly obvious. It is the perennial difficulty of identifying and isolating the effect of one force in a situation where other forces are also actively at work.

Two things appear to have occurred: one, the demand for farm products as a whole has apparently expanded far more than was to be expected from the increase in income; and two, farm products with low income elasticity have fared, so it appears, about as well as those with much higher elasticities. In addition to increase in income (always restricted to the United States in this context) the demand for farm products has been lifted by (1) the diversion of some buying power to food caused by the continued short supply of a number of important durables, (2) the low reserves of food, and (3) the extraordinary foreign demand. The latter is especially instructive on the following point: There can be little doubt that wide differences do exist among the income elasticities of farm products. Accordingly, although the sharp rise in income did increase the demand for, say, eggs, meats, milk and fruits, more than that for cereals for example, the pronounced expansion in the foreign demand for cereals has obliterated these differences. Lastly and most important is the fact that the price elasticities of most farm products are on the low side, and in the short run these price elasticities have predominated, reflecting both supply and demand conditions in transition.

The income analysis herein outlined applies essentially to long-run adjustments. There are no reasons for believing that given time for the long-run to manifest itself, the income effects to be expected from general analysis will not occur. As they do it may be presumed that the cost structure in agriculture will be modified by these income effects along lines indicated earlier in this section.

III

Product Price Effects. The prices of non-agricultural products that farmers buy are an important highway connecting the two

sectors of the economy under discussion. We shall restrict our remarks to items entering into production in agriculture. Production expenses of farm operators have doubled, increasing from 6,280 million dollars in 1940 to 12,500 millions in 1946. Our query at this point is: How much of this increase has been caused by the changes that have occurred in employment?

It is well known, of course, that by no means all production expenses of farm operators consist of non-agricultural products. The item for feed purchased is large and it has tripled, jumping from 842 million dollars in 1940 to 2,477 million in 1946. Feed, seed and livestock, all products originating in agriculture, are among the items that have risen most in price. Nor does the bill for taxes, hired labor, mortgage interest and rent belong in the classification of products with which we are concerned here. Among the products coming from the hands of the non-agricultural labor force are such items as farm machinery, building materials, motor and other equipment, insecticide, twine, electricity, fuel, dairy and hardware supplies, and the like. This category of items made up about 45 percent of all production expenses of farm operators in 1940 and about 38 percent in 1946.

The product price effects resulting from basic changes in national employment, such as have occurred since 1940, may be traced in terms of three types of adjustments, namely (1) the level of employment, (2) the level of wages, and (3) the structure of wages and of other rewards to factors. First, then, let us consider briefly an increase in the level of employment under the assumption of a constant level of wages. It is conceivable, albeit very improbable, that the non-agricultural civilian employment could have increased from a little less than 38 millions to virtually 50 millions, as it did in fact from 1940 to midyear of 1947, without any increase in the general level of wages. It is, nevertheless, instructive to speculate on what might happen to costs under such circumstances. Let us suppose for a moment that all non-labor resources in the American economy had been fully employed as of 1940 with diminishing returns to human effort generally, at the margin. The consequences of adding a mass of workers, totalling 12 millions would certainly have lowered the value productivity per worker. With the level of wages constant, and with the cost of production increasing, it follows that the prices of products would have to rise.

Obviously all this is a far cry from the circumstances that have in

fact prevailed. Despite an increase of about 30 percent in non-agricultural civilian employment, the real output per worker presumably has increased substantially. To illustrate, if we return to the figures for labor income given earlier, namely about 49 billions in 1940 and 110 billion dollars for 1946, and adjust for changes in prices,⁵ the aggregate increase amounts to nearly 50 percent and, on a per worker basis, to almost 15 percent. The inference is that there existed much excess capacity in terms of resources complementary to labor and accordingly a measure of increasing returns has been realized. We may infer from this, given a constant wage level, that the cost of producing non-agricultural products would have fallen and lower product prices would have been warranted.

The level of wages has been anything but constant. Inflation has been the lubricant, and we have used it freely in mobilizing the economy for war and again in making the transition to peacetime production. We have had enough inflation to overcome a multitude of frictions and also enough to reduce sharply the buying power of all whose money income is inelastic. While it is difficult to ascertain exactly how much the level of wages has risen, taking all non-agricultural industries together, the increase in average hourly earnings in manufacturing will serve our purpose. The 1940 monthly average was \$.66 per hour and at midyear, 1947, it had reached \$1.22 per hour, a rise of nearly 85 percent.

If we assume that the value productivity per worker increased about 15 percent and if we adjust for the increase in wage rates, the indication is that we have had a wage inflation in the neighborhood of 70 percent. and this increase, and in many cases more than this, is reflected in product prices.

At this point it may be instructive to take a look at the changes in prices paid by farmers. Building materials have doubled since 1940 while at the other extreme, the prices paid for farm machinery (other than motor vehicles) have risen less than 40 percent. This difference in price behavior is not wholly a matter of degrees in administered prices. Take the case of farm machinery: the major firms in that industry have been in a favorable cost position, such as to warrant relatively low selling prices (even though such prices have not equated supply and demand without industry-wide ration-

⁵ The consumer's price index for 1946 averaged 139.3, but this plainly understates the price situation. In December of 1946 this index stood at 153.3. In the above calculations we have, essentially for convenience, adjusted by 150.

ing and a respectable dark-gray market). For the most part the efficiency of labor has not been impaired during the transition to peacetime conditions, excess plant capacity has been utilized more fully lowering overhead cost per unit and selling cost have undoubtedly fallen; and as a result, although wages have followed the general upward spiral, selling prices have risen substantially less than in most fields. One leading firm, the International Harvester Company, it is of interest to note in passing, was moved to announce a small reduction in its price list some months ago.

There is little on which to remark in the case of changes in the structure of wages, and of other rewards. Looking at rewards generally, it appears that returns to proprietor interests, with agriculture in the forefront, have risen relatively more than wages and salaries, that wages have exceeded salaries, and that interest and net rent have risen the least.⁶

	1939		1946	
	In Billions of dollars	Share of total in %	In Billions of dollars	Share of total in %
Total	70.8	100.0	165.0	100.0
Employees (wages and salaries)	48.0	67.8	109.8	66.5
Net income of Ag'l proprietors	4.3	6.1	14.9	9.0
Net income of other proprietors including net corporate profits	11.1	15.7	27.3	16.6
Interest and net rent	7.4	10.4	13.0	7.9

What then are the price effects of fundamental changes in employment, such as have occurred in the United States since 1940, upon non-agricultural products that farmers buy? The adding of 12 million workers to civilian employment in non-agricultural jobs probably did not lower the value productivity per worker. Instead, there are many diverse indications that output per head employed has increased somewhat, perhaps as much as 15 percent but very likely not as much as 25 percent or more as some have been prone to argue, and surely not as much as wages have increased. Consequently, higher product prices have been in order to reflect a marked wage inflation, but not necessarily as high as many product prices have soared—in view of the fact that rewards to proprietors now claim a larger share of the national income than formerly. (See data

⁶ Based on *Survey of Current Business*, U. S. Dept. of Commerce.

above.) In the main the non-agricultural products that farmers buy for production have not risen disproportionately.

Factor Price Effects. We noted, first, the gentle rain that comes from an expansion of income and how this nurtures factor costs in agriculture. The demands for farm products grow but at an uneven rate and herein lies the clew to their effects on costs. We then observed the stormy path of non-agricultural product prices feeding higher costs into agriculture. This storm consists of two conflicting currents; namely higher productivity making for lower cost and a gusty spiral of wage and price inflation, much the stronger of the two as it sweeps the countryside. There is still a third force at work, probably much the strongest of them all over the years in reshaping the basic cost structure within agriculture, and that is the effects of employment on the relative cost of human effort in agriculture.

The channels and the nature of the causes at work are, I believe, fairly clear. The development of the American economy has made it necessary to transfer, on the one hand, many labor resources out of agriculture, and on the other much capital into farming. To the extent that these transfers have been insufficient a factor disequilibrium has arisen. This imbalance between agriculture and the rest of the economy was worsened very appreciably during the Great Depression. There was the failure of job opportunities to materialize in industry sufficient to absorb the excess supply of labor in agriculture, and there was the extreme instability of prices and income adding to the economic uncertainty of farming and thus tightening the adverse effects of capital rationing upon farming.

Obviously, the financial position of farmers has improved by Bunyan-like strides. Never before were they better situated in terms of assets owned to total assets and in terms of liquidity. Accordingly, we may expect farmers to close a substantial part of the gap that has heretofore existed between the prevailing cost of additional capital and the marginal efficiency of capital used in farming. Yet this gain, important as it is, would be largely blocked unless labor resources in excess of supply in agriculture have an opportunity to transfer into nonagricultural employment.

The expansion in employment has, of course, provided precisely this type of opportunity. The industrial-urban labor market has been absorbing many farm people. But this labor market, even at best, always, has many imperfections. There are an endless variety of barriers to migration. More recently the shortage of housing has loomed very large. Yet despite the barriers—physical, economic,

and social—the improvement in the factor market for labor in the nonagricultural sphere has affected agriculture. The evidence on this point is not controvertible. In January, 1947, the farm population was 3 million less or about 10 percent below that in April, 1940. The careful, detailed, studies of the characteristics of the labor force in agriculture by Hagood and Ducoff throw much needed light on how this factor market operates.

Our concern here, however, is with factor costs in agriculture. On theoretical grounds as well as statistical, our conclusion is as follows: (1) In going from low to high employment the wages for human effort increase relatively more in agriculture than they do in the non-agricultural sector; and (2) the cost of human effort in farming rises relatively to the cost of capital including the cost of land.

Given a change in national employment of the magnitude that has occurred since 1940, we may expect these two types of adjustments in costs to bring about a major transfer of labor resources, out of agriculture, as it has, and to induce a far-reaching recombination of resources in farming consisting of a substitution of capital for human effort, and, on many farms, an increase in the scale of the farm. Two sets of figures will aid us in illustrating these developments. First let us take the change from 1940 to 1946 in average annual earnings per full time employee:⁷

	All Industries (in dollars)	Mining (in dollars)	Federal General Government (dollars)	Transportation (in dollars)	Manufacturing (in dollars)	Wholesale & retail trade (dollars)	Services (in dollars)	Farms (in dollars)
1940	1306	1388	1139	1754	1432	1391	949	390
1946	2357	2677	2424	2937	2512	2392	1842	1181
Increase in dollars	1051	1289	1285	1183	1080	1001	893	791
Increase in percent (1946 over 1940)	80	93	113	67	75	72	94	203

Note first that in this context wages on farms have increased much more relatively than in other major industries. The increase in nonagricultural wages listed range from 67 to 113 percent while those on farms tripled. In absolute terms, however, the increase on

⁷ Based on Table 26 of the July, 1947 Supplement to *Survey of Current Business on National Income*. U. S. Department of Commerce.

farms was the smallest, namely, 791 dollars compared to a range from 893 to 1289 dollars in other fields.

The second set of figures pertain to the changes in relative costs of factors within agriculture:

Type of factor	Increase from
	1940 to midyear,
	1947
	1940 = 100
1. Capital (cost of long and short term funds)	100
2. Farm machinery	140
3. Equipment and supplies	150
4. Farm real estate	190
5. Building materials	200
6. Farm labor	320

In closing these reflections on cost, it may be of interest to speculate on what would happen to this pattern of cost if during the next three to five years the United States were able to maintain full employment, and if farm product prices were to decline about one-fourth to one-third relative to other product prices during this period. My anticipation would be in these terms: agriculture would be better supplied with capital than ever before, capital rationing would become a less important factor than before the war, and the effective rate of interest in agriculture would probably not rise. Given the strong financial positions of farmers it might even decline some. Prices of farm machinery, equipment and supplies would climb from present levels, and building material, on the other hand, would fall. The strong upward drift in farm real estate prices would be checked; but under the conditions postulated, it would probably not decline. The cost of labor, and of human effort generally in agriculture would continue to rise for the disequilibrium in this factor market is still very considerable. If these expectations were in fact realized, the cost structure in agriculture will become significantly different from that of the pre-war period, and this, in turn, will require an important reorganization of resources in farming, substituting capital for labor and enlarging the scale of many American farms.

Costs in economics, like gravity in physics in this atomic age, may be a bit old-fashioned, but basic nevertheless, in analyzing economic efficiency. The income and price effects of high employment clearly point to changes in the cost structure in agriculture that are exceedingly far-reaching in their economic, social, and political implications.

COOPERATIVES IN A CAPITALISTIC ECONOMY*

E. FRED KOLLER
University of Minnesota

THE current controversy between leaders of cooperatives and other types of business organization has directed renewed attention to the role of cooperatives in our capitalistic private enterprise economy. To many, cooperation has appealed as a means of solving some of the difficult economic problems which confront our national economy. More enthusiastic exponents of cooperation hope for the day when cooperatives will dominate economic activities. Others look upon the movement as antagonistic to the present economic order and would relegate it to a subordinate role. In view of these differences it is timely to review the basic doctrines and plan of organization of cooperation and of the capitalistic economy in which it operates. Then we may appraise objectively the place of cooperatives in the contemporary economic order.

Let us examine briefly, "What are some of the distinguishing characteristics of our capitalistic private enterprise economy?" Various ideas could be presented but, in general, our economic system is characterized by a predominant use of capital and is differentiated from rival systems of economic organization in its form of ownership and control of capital and in its distinctive motivation.

Among the essential elements in the system are its economic institutions including, among others, the institution of private property. Private property rights in both producers' and consumers' goods are basic features of the capitalistic economy. Over long history we have accepted the doctrine that the property which an individual creates or acquires belongs primarily to him. The right to private property is a means of compensating the individual for activities he has undertaken and is an incentive to the full use of his productive ability.

The profit motive is another generally recognized feature of the system. Economic activity in the capitalistic system is actuated by the quest for private gain. It is upon this motive that the capitalistic economy depends to stimulate individuals to put forth their greatest productive effort.

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947.

The right of private enterprise is a dominant feature of our economic society. Within limits, individuals are privileged to engage in any enterprise they choose and are free to enter into contracts for the production of goods and services. Production and distribution of goods and services are characteristically organized and performed by private individuals or privately owned organizations. We should note the prime importance accorded to the individual in our economic system. We shall see that in the cooperative plan of organization similar stress is placed on individual initiative and control.

It is in this setting of economic doctrines and economic institutions that American cooperation is being developed. Now let us consider the basic principles and plan of business organization characteristic of cooperation so we may see in what respects cooperatives and ordinary business are in agreement and in what respects there are differences and conflicts.

What Is a Cooperative?

What is a cooperative? A clean cut, comprehensive definition is difficult to formulate. There are various concepts of cooperation but for purposes of this discussion a cooperative may be viewed as a form of business organization—an economic entity¹—owned and controlled by its member patrons for the rendering of services for their mutual benefit as patrons. A better understanding of what a cooperative really is can be obtained by examining its underlying principles and by comparing its plan of organization and operation with that of ordinary business corporations.

The differences between cooperatives and ordinary business firms appear very distinct at first sight, but these are principally differences in form of organization and operation. When one considers the underlying economic objectives of the cooperative plan of business, they are not fundamentally at variance with the basic objectives and principles underlying ordinary business. Basically, cooperatives seek economic gains for their members and patrons. The objective of a farm producers' cooperative is to improve the returns, the gains, to be derived from the individual farm business. The objective of a consumers' cooperative is similar to this.² The

¹ Frank Robotka, "A Theory of Cooperation," this JOURNAL, Vol. XXIX, No. 1, February 1947, pp. 94-114.

² Dr. James Peter Warbasse, a leading exponent of consumer cooperation, has pointed out that "the workingman patronizing his cooperative store . . . is in profit business, just like the farmer." See James Peter Warbasse, "Basic Principles of Cooperation," *The Annals of the American Academy*, Vol. 191, May 1937, pp. 15-16.

basic aim of every business undertaking regardless of its form is gain for some individual or individuals. A corporation, ordinary or cooperative, is an arrangement for carrying on economic activities. It is not the ultimate receiver of gains or the bearer of losses. These eventually go to or fall on natural persons.

The cooperative plan of business has been shaped accordingly to achieve the objective of its members and patrons. For instance, cooperatives differ from ordinary business in their *method of control*. Voting in a cooperative is usually (not always) on a one-man-one-vote basis regardless of the number of shares the individual member may possess. This is in contrast with the practice in ordinary business corporations in which voting is based on the number of common shares owned. The use of the one-man-one-vote plan of control is a means to the end of promoting the cooperative objective of maximizing returns to the farm business of the individual participants. If voting in a cooperative were on a share basis, it is conceivable that a few might vote to distribute more of the proceeds in returns on shares rather than on the basis of product handled. The cooperative plan of business control is obviously democratic. It emphasizes the importance of the individual and is in accord with the basic tenets of private enterprise.

Cooperatives usually place a *limitation on the return to capital* which is in contrast with the practice of ordinary corporations which establish no such limits. In their incorporation papers cooperatives generally set the upper limits to returns on member capital at 6 or 8 per cent, but more and more are establishing lower limits and follow the practice of paying only the prevailing rate of interest on this capital. Again, this difference in cooperative and ordinary business procedure is attributable to differences in the objectives of the respective organizations. To repeat, a farmer advances capital to his cooperative not for the purpose of improving his return on his cooperative securities, but rather to obtain better returns on his farm products and thereby improving returns to capital invested in his farm. The differences are in methods and the form of operation and are not fundamental since, in the final analysis, both the private business owner and the farmer are seeking in their own way to enhance gains to the individual.

Another basic feature of the cooperative plan of operation is that *services are performed at cost or on a non-profit basis*. In handling the products of their members cooperatives are usually obligated (under contract) to deduct all costs incurred from the total proceeds

and then to remit the remainder to the participants on the basis of the volume of business they have provided. When operated in this manner, the cooperative has no income or gain on its own account. However, when the net proceeds are distributed by the association they give rise to gains or income in the farm business of the respective members. Knowledge of this aspect of the cooperative plan of business is essential to understanding why in determining federal income tax liability patronage refunds are excludable from the tax base of the association but must be included in determining the personal income tax of the participating patrons. The ordinary business firm, in contrast with the cooperative, is operated for the gain of the stockholders or owners. The difference between cooperatives and ordinary business on this point is not as pronounced and fundamental as some assume. The two systems have much in common in that the ultimate aim of both is to achieve gains for individual participants. The difference lies in the way in which the gains are allocated to the individuals involved.

As has been suggested above, another respect in which the cooperative plan of business differs from the ordinary business plan is in its *patronage refund distribution*. In the cooperative any net margins remaining at the end of the fiscal period are distributed or prorated to members on the basis of patronage. In the ordinary corporation, net profits are distributed to stockholders on the basis of shares owned or are retained in surplus. Under the cooperative plan a different distribution of income results, but it is not antagonistic to any basic principle of private enterprise.

When we examine cooperative business for the similarities it bears to ordinary capitalistic enterprise, we find a predominance of likeness. Cooperative business accepts the fundamental institutions of capitalism including the right of private property, the right of contract, inheritance, and the right of private enterprise with its emphasis on the dignity and importance of the individual. Even in the matter of motivation the differences are a matter of form rather than basic principle.

With respect to many aspects of their daily business operations, cooperatives also are like the ordinary enterprise. They use capital to carry on their activities and pay the going rate of interest for it. They hire labor and usually obtain it on the same terms and conditions as other firms. They employ managers and compensate them on the basis of the quality of services they render. Like their

ordinary business counterparts, they depend on efficient business methods for success.

Furthermore, cooperatives and ordinary business firms are in substantial agreement on the place of government in the economic system. Cooperatives are in full accord with the doctrines of private enterprise and generally oppose the encroachment of government in business. While cooperatives have been the object of some favorable legislation including financial and educational aids, the advantages which have been conferred have been reasonable and do not appear to exceed benefits extended to other business groups in the public interest.

It has been charged by some that cooperation is socialistic and that extension of the movement is a step toward the creation of a socialistic state. A brief examination of the doctrines of socialism reveals some fundamental differences. Socialism represents ownership and control of the basic means of production and distribution by the state and for the benefit of society as a whole. A feature of socialist doctrine is its emphasis upon a more equitable distribution of income and wealth. Socialism implies subordination of the individual to the state and places the interest of the general public above private interest. It would replace competition as the regulative force in economic society and substitute control by government.

In contrast with the doctrines of socialism, cooperatives generally oppose ownership and control of the means of production by the state. Socialism is at variance with the philosophy of nearly every member of farmers' cooperatives in America, since it is recognized that under this system of economic organization not only factories and railroads but also land would be subject to state ownership and control. Cooperatives also favor an improved distribution of income. However, cooperative distribution according to patronage rests on the principle of productive contribution which is in accord with the principle of distribution commonly accepted in capitalistic society. It is in contrast with the socialist goal of equal distribution or on the basis of need.

In general, cooperatives recognize along with capitalist business that expansion of the business functions of the political state creates an instrument which in the end would destroy cooperatives or would allow them to exist only as an arm of the state and under its control. The experiences of cooperatives in communist Russia and fascist

Spain bear witness to this point. In brief, cooperation seeks to gain its ends by economic action rather than political action.

Thus, after reviewing the basic concepts of capitalism and cooperation, we find a maximum of agreement in their underlying principles and foundations. We may say that cooperatives are an integral part of the capitalistic economy just as are ordinary corporations, partnerships and individual proprietorships. Cooperation is a phase of the capitalistic free enterprise system and not foreign or antagonistic to it. A better understanding of these concepts by both cooperators and ordinary businessmen would serve to lessen the bitter controversies which often develop between these groups and would promote a greater tolerance.

The Role of Cooperatives

Now we may inquire, "What is the place of cooperatives in our capitalistic economy? What positive contribution can these organizations make toward improvement of the economic system?" A number of answers may be supplied to these questions but, in general, the primary role of cooperatives is to overcome some of the defects and limitations of the capitalistic economy. Important among these are imperfections in the competitive process which interfere with the free allocation of resources in accordance with consumer preferences. A fundamental objective of the cooperative plan of business is to improve competition and to enlarge the area in which the competitive pricing mechanism is effective.

In performing their important role in the economic system, successful cooperatives provide leadership in supplying their patrons with goods and services on a more efficient and economical basis than they have been provided by non-cooperative business. Some have referred to this as the "pacemaker" or "yardstick" role of cooperatives. Let us review by what methods these organizations have achieved these desirable results.

Repeatedly cooperatives have taken the lead in the introduction of *improved techniques* of production and distribution which have served to reduce costs and improve the returns of their members. Among these techniques are standardization of production of various commodities produced on farms and standardization of packages and grades. Quality improvement programs and improved methods of handling often have been sponsored by cooperatives. Efforts to standardize market quotations and terms of sales, and

activities designed to widen market information available to producers have been accomplished where cooperatives have taken the lead. In many cases these and other improvements gradually were adopted by competing firms and thus the benefits also have become available to others than members of cooperatives.

Purchasing and consumers' cooperatives have been in the forefront in the effort to improve qualities of merchandise of all kinds by such techniques as laboratory testing of products, open formulas, descriptive labeling, standardization, and by methods designed to provide patrons with more information about the merchandise they use. These organizations aim to reduce selling costs by substituting informative advertising and consumer education for advertising and salesmanship based largely on emotional appeal. By popularizing these methods, cooperatives enable the economic system to more nearly approximate the conditions of perfect competition.

It must be recognized that cooperative performance often falls short of promise in introducing these desirable techniques. Cooperatives may reexamine to advantage their advertising, their selling, their various marketing and purchasing practices to ascertain if they are playing a positive role in improving the efficiency of the economic system.

By bringing about the horizontal combination of producers, cooperatives have played a distinctive role in achieving important economies. Horizontal combination has been a means of effecting an *optimum scale of enterprise* including optimum scale of plant, optimum scale of management and other services. In this way small-scale farmers who could not perform certain marketing and purchasing activities efficiently on an individual basis have been brought together to obtain the advantages of size. Horizontal combination has been instrumental in reducing irrational competition characterized by excessive duplication of services and facilities in many local and terminal markets. Duplication of creameries, livestock buyers, egg and poultry buyers and other services were frequent and tended to leave the scale of production of various business units far below the optimum level. By entering these situations, cooperatives have contributed significantly in improving the allocation of resources in our economy.

Cooperative groups are at times slow in recognizing that the need for further horizontal combination of producers exists. Changing

techniques in the form of improved transportation and better processing facilities give rise to new optimums in the scale of enterprise which call for the cooperation of more producers. If this is to be achieved in the areas in which many cooperatives operate, consolidation of these groups is necessary. Among our dairy and grain associations in the middlewest, projects of this kind are needed urgently at this time. If these organizations recognize their role in the capitalistic economy, the step should be taken promptly in the best interest of the individual producers.

Cooperatives have achieved other significant economies and improved the economic position of small-scale producers (and small-scale consumers) by *vertical integration*. The need for integration in agriculture both forward toward consumers and back toward sources of supply is large. The typical farm is a small-scale business enterprise, a small food or fibre factory, which is too small to achieve the advantages of vertical integration on an individual basis. Entry of such a unit into additional marketing or purchasing activities requiring specialized equipment and services is not economical since an optimum scale of enterprise could not be achieved. By joining with others in a cooperative organization, the individual farmer can obtain the advantages of integration on an economical basis. Illustrations of the entry of cooperatives into such activities are common. Some dairy marketing associations are performing all of the respective marketing functions including assembly, processing, transportation, and the like, all the way to the consumers. More and more purchasing associations have undertaken wholesale functions, manufacturing, refinery operations, and including ownership of the primary sources of their raw materials.

Among the advantages which cooperatives have obtained for their patrons by vertical integration are economies involved in the elimination of successive advertising expenses, successive selling costs, handling charges and profit margins as commodities are transferred from hand to hand on the way to market. Vertical integration has made more economical distribution possible by making marketing more direct.

Certain private business interests have viewed the trend toward large-scale vertical integration by cooperatives with alarm. It is argued that small cooperatives at the local level are desirable, but not large integrated organizations. It should be pointed out that there is no basic difference in the principle of operation of the two

types of cooperatives. Both operate according to similar plans and have similar objectives. When farmers unite in their cooperatives to obtain the advantages of vertical integration they are extending their business in the same way as large private firms which are integrating their activities forward toward consumers or back to sources of supply.

It is conceivable that vertical integration of producers could approach the monopolistic situation. This involves a completeness of integration from producers to consumers which goes beyond present development of cooperatives. The probability of these organizations achieving such control of our agricultural commodity markets is relatively small as we shall point out later.

Another important role which cooperatives have performed consistently is that of counteracting and breaking down the monopolistic elements which develop in private business. The prevalence of monopolistic pricing is one of the more important reasons why the capitalistic economy fails to function satisfactorily, since the system depends upon prices to direct the activity of individuals into the most productive channels. Cooperatives are a means of effecting some control over monopolistic pricing. By entering into competition with existing monopolies, cooperatives are a factor in making the price structure more nearly competitive in many lines of enterprise. Furthermore, it is a control that operates within the framework of the private enterprise system and it is, therefore, a means of avoiding further extension of controls by government.

From early history cooperatives have taken a stand against monopolistic practices in private business. In the Granger period of the 1870's, cooperatives were formed and directed toward breaking up monopolistic conditions of that period. Contemporary cooperatives likewise have been established with the avowed purpose of providing competition in fields in which protection against monopolistic conditions has been deemed desirable. The entry of cooperatives into the petroleum business, into the manufacture of fertilizers and farm machinery are illustrations of current efforts to provide competitive safeguards against monopolistic elements.

From time to time, some cooperatives have deviated from the traditional stand on monopoly and have resorted to monopolistic methods. Early in the 1920's under the promotional efforts of Aaron Sapiro, an extensive attempt was made to organize cooperatives large enough to control an important part of the supply of certain

agricultural commodities. It was essentially an attempt to effect monopolistic controls to improve farm prices. In the Farm Board days of the early 1930's somewhat similar attempts were made to organize large national cooperatives which were expected to exercise an important influence on the prices of agricultural products. These and other attempts to effect a monopoly position by means of cooperative organization broke down. The basic difficulty that all attempts to achieve a monopoly position in agricultural products have faced is that the cooperative has not had control over the volume of production of its members or of producers outside the organization. Therefore, as soon as returns to farmers were increased by organization, additional supplies were produced which served to undermine the monopoly position.

Some contemporary cooperatives appear to be returning to acceptance of the monopoly principle even though the results under earlier attempts were none too successful. Some of these organizations are seeking to effect rather tight control, approaching monopolistic control, of the market in order to obtain additional returns for their members. To avoid the failures experienced in earlier attempts to achieve a monopoly position, government assistance has been resorted to in some instances to strengthen restrictive practices. State and municipal governments are reinforcing the power of fluid milk organizations in many of our large city markets. Federal marketing agreements, production control, and price support programs are a few among a number of methods which tend to enlarge the power of some cooperatives.

We can understand and sympathize with the point of view of cooperators who desire to use the size and power of their organization to achieve monopoly gains. Admittedly, farmers have suffered serious abuses in some markets in the past. They have cause to be irked by present pressures being exerted on them by both business and labor monopolies. Some undoubtedly have concluded that it is either too slow, or next to impossible, to break down the monopoly position of certain buyers in the market by normal competitive methods, so they have turned to building up their own monopoly power to challenge the opposing forces in the market. The reaction is to meet power with power.

However, the gains which cooperatives may achieve by creating monopolies, some of which are reinforced with government help, may be short-lived and costly both to cooperatives and to farmers.

Such organizations easily may become weak and inefficient. An even more serious matter is that public resentment against such an economic structure is growing and cooperatives as well as farmers face the prospect of reactions. Private business has experienced similar reactions in the past as reflected in SEC legislation and other curbs. Reaction to the monopolistic practices of certain labor groups led to passage of the Taft-Hartley Labor law, the Lea (Petrillo) Act, and other measures.

It should be understood that, to date, those who would use cooperatives to achieve monopoly gains represent a small minority in the movement. It should be understood also that cooperatives have not developed organizations which approach the size and power of many of our large national corporations and labor unions. Some of our largest cooperatives such as Land O'Lakes, Farmers Union Grain Terminal Association, Grange League Federation, and Eastern States Farmers Exchange are relatively small when compared with our leading private corporations. Furthermore, since these organizations do not control supplies in their respective fields and insofar as they do not try to manipulate price by withholding supplies, they are not monopolistic elements in the price structure.

Observing the rapid growth of cooperatives some individuals have expressed the fear that these organizations threaten to supersede other forms of private business. Taken by itself, the growth in the business volume of cooperatives from 1940 to 1945 has been impressive. In this period the total volume of business of farmers' cooperatives in the United States increased from \$2.3 billion to \$6.1 billion, or 165 per cent.³ However, in the same period the total cash income of agriculture increased 149 per cent, and the total volume of general business as measured by bank debits to deposit accounts rose 107 percent. Moreover, the business volume of farmers' cooperatives expressed as a percentage of gross consumers' expenditures was only 5.8 percent of the total in 1945.

The preponderant majority of cooperatives over the country recognize that the sound, constructive role of cooperatives in our capitalistic economy is that of competitive pacemaker and not monopolistic manipulation. They are aware of the prime importance of maintaining leadership in efficient production, processing, and distribution. The more progressive cooperatives recognize

³ Cooperative Research and Service Division, Farm Credit Administration, Washington, D. C.

that it is their function in the economy to stimulate competition by maintaining high standards of efficiency and service. To achieve these results, cooperatives do not need to be large enough to constitute a monopolistic influence on prices. Even a small but efficient cooperative occupying a strategic spot in the market may be highly influential as a competitive pacemaker.

To perform their role in the economy most effectively, cooperatives themselves need the stimulation of private business competition. Successful cooperatives owe a great deal to their competitors. Efficient competitors present a continuous challenge to cooperative management to try to render better service at lower costs. The reciprocal competitive action of efficient cooperatives and efficient private business firms is a most desirable goal for the economy. It is a means of assuring to farmers and others a more effective and productive economic system than one in which government regulation plays a larger part.

Thus, we see that cooperatives provide a means of complementing and strengthening the capitalistic economy at its weakest points. While cooperation is clearly not a panacea for all the ills of capitalism, it does perform a positive role in the free enterprise economy by aiding it to achieve a better allocation of resources, higher total production and a wider distribution of income. The ameliorating influence of cooperatives in our economy is particularly vital in these days when the free enterprise system is being challenged by the sanguine promises of state-controlled economies that now prevail over so much of the world.

THE PLACE OF COOPERATIVES IN A SOUND FARM ECONOMY*

JOHN H. DAVIS

National Council of Farmer Cooperatives

TO SEE farmer cooperatives in their true perspective one must view them not only as business entities, but also in their relationships to the farms they serve. In 1800 America was a country of small industries and small farms. Today America is a country of large industries and small farms. In 1942, 205 manufacturing corporations owned 49 percent of all the corporate manufacturing assets. Industry has become large through the creation of large production units which are usually combined with large procurement departments and large selling departments. In general the procurement, production, and selling departments are all closely integrated under common management and ownership. In contrast to this, the production unit in agriculture has remained small, typically the family operated farm. In 1940 this typical farm was 187 acres. Such farms are too small for each to have an efficient buying and selling department of its own.

Through the years farmers have sought to overcome this handicap. The most successful device has been the cooperative which permits a group of farmers to join together in the creation of a single buying or selling department to serve the farms of its several members. In this way farmers can combine the advantages of efficient production with efficient procurement and selling. Thus, farmer cooperatives are an integral part of the farms they serve.

Dr. Frank Robotka pointed this out in a paper presented at the American Farm Economic Association's session in Philadelphia in 1946. You will recall that he described the farms of America as autonomous units and the farmer cooperatives as federations of these autonomous units, having delegated powers. He stressed the fact that farmer cooperatives are creatures of the farmers, owned by the farmers, controlled by the farmers and having only such powers as are delegated to them by the farmers. Dr. Robotka went on to explain how under such an arrangement it was logical for farmers to adopt such policies as one-man-one-vote, limited earnings on capital, non-profit operations and the distribution of savings

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947.

in proportion to patronage. In other words, the farmer cooperative is not just another enterprise competing for the farmers' business. It is a business which the farmers own and control which competes with those which farmers do not own and control. Because the farmer owns and controls his cooperative, the cooperative views the procurement, marketing and service functions from the standpoint of the farmer, and not from that of a third party who merely handles products which he himself neither produces nor uses. In saying this, I am not condemning the merchants who handle supplies and products for the farmers. On the whole, I am sure that they are men of as high integrity and character as are the farmers themselves. I am, however, stressing the difference in viewpoint between the cooperative and the third party businesses which serve the farmer. Both are motivated largely by the desire for economic gain—the farmer from farming and the third party merchant from handling the farmer's goods. The farmer wants efficient and adequate service at low costs, whereas the merchant is largely interested in good margins times large volume.

As is generally known, cooperative marketing has a longer history than cooperative purchasing of farm supplies. The first efforts were related largely to the handling of products as they left the farms, namely assembling, grading, packaging and shipping in car lots. Later farmers turned their attention to central or terminal markets. To be effective in these larger markets, larger volumes were required. To solve this problem farmers did a natural thing—they federated their local cooperatives into a central or regional selling unit, which was owned and controlled by the farmers through their local associations. Even this left untouched the fields of processing and the merchandising of the finished product. More recently farmers have entered these activities by cooperatively owning canning plants, dehydrating plants, freezing plants, oil extracting plants, cotton gins and the like. In the case of farm supplies, farmers first organized local buying clubs or units which competed largely at the retail level. In time the farmers extended their competition into the wholesale and manufacturing functions. This, too, was accomplished largely by the federation of local cooperatives into central units having volume sufficiently large to permit efficient operation.

I have prefaced my discussion of the subject at hand by thus explaining the integrated relationship between the cooperative and

the farms it serves because one must see this clearly in order to understand the place of cooperatives in a sound farm economy. American farm policy has historically promoted the family-operated farm, farmer ownership, efficiency in production, and a minimum of government in farming. Farmer cooperatives contribute towards these objectives. They promote the family farm by enabling small farmers to be efficient not only in production, but in buying and selling and processing and merchandising. They promote farmer ownership by increasing farm income. They promote efficient production by enabling farmers to obtain supplies and services at cost. They help to minimize the direct participation of government in agriculture by enabling farmers to solve problems for themselves.

Let me illustrate the need for cooperatives in a sound farm economy. A few years ago the Commodity Credit Corporation had accumulated large stocks of agricultural products. The CCC had no adequate merchandising program for the surplus it owned—nor is it likely to, in the American economy. Under our so-called free enterprise system, merchandising is considered a function for the private trade including cooperatives, and I think rightly so. Thus we found ourselves in a position of the government owning the surplus, and the merchandisers unable to adequately merchandise stocks which they did not own or control. You know the story of how the surplus was finally liquidated at reduced prices as feed, grain for alcohol, and relief. The point is that our government support programs themselves do not provide the machinery for good merchandising. If farmers are to have a strong voice in marketing and merchandising, they themselves must set the pace by developing facilities which they own and control. The cooperative provides the best technique yet devised for this purpose.

Let us look at another example—potatoes. Last year the government spent about 80 million dollars supporting the price of potatoes. Potato marketing men in whom I have confidence tell me there would have been no actual surplus provided we had an adequate distributive system for getting the proper quality and quantity of potatoes where they were needed when they were needed. Not only did potatoes spoil, but in some areas good quality potatoes rotted or were used for feed while in other areas cull potatoes were used for food.

Contrast potatoes with citrus, where a surplus also existed. In

the case of citrus there was a marketing agreement which supplied the fresh market with high quality fruit and diverted the surplus into juice, canned fruit and other products. Where there are strong cooperatives, as in citrus, the farmers can through their own democratic organizations administer the marketing agreements. Where strong cooperatives do not exist, marketing agreements must be administered largely through government representatives. I believe that a careful study would show that once the government assumes the responsibility for administering marketing agreements, it is extremely difficult for farmers to organize cooperatively. I suggest the need for further study of this phase of marketing agreements so as to make possible maximum farmer direction if and when marketing agreements are extended to other commodities or markets. Similar examples of the need for cooperatives and of what farmers have done through cooperatives can be cited for almost any commodity.

In a number of milk sheds farmers have invested in facilities for handling flush-season milk in the form of butter, cheese, milk powder, condensed milk or ice cream. Fruit growers and vegetable growers have invested in facilities for converting a part of their highly perishable products into non-perishable form. In this way high quality products can be marketed on the fresh market, and the surplus, including the lower quality, diverted to the processed market. Thus the market is steadied, the total amount offered the consumer is increased, the consumer obtains better quality and the farmer receives more income. Farmers, having their own brands, can promote the expansion of their markets. Not only this, but they can conduct or guide research designed to solve specific problems. Moreover, when research has been completed, farmers through their cooperatives can put research results into practice.

Nor need all of the examples of what cooperatives can do in a farm program be chosen from the field of marketing. During the recent hearings of a congressional committee I had occasion to review the Preliminary Report of the Joint Legislative Committee on Dairy Products, Livestock and Poultry, New York State Senate, February 15, 1917. This investigation very vividly brought out the fact that farmers in the New York milk shed were being exploited in the purchase of feed through price fixing and the adulteration of feeds through the use of such substances as chaff, sawdust, and

ground hulls. To correct the situation the farmers of New York organized their own feed manufacturing and distributing agency—namely, the Grange-League-Federation. In a matter of months this new farmer-owned and controlled agency had injected enough new competition into the feed trade to satisfactorily raise the level of quality and service. Not only has this been done in New York, but in most of the states of the Union. Nor has the farmer competition been confined to feed. It has also extended to virtually all items of farm production supplies including seed, fertilizer, tractor fuel, machinery, building supplies, electricity, telephone service, credit, insurance, drainage, irrigation, conservation and artificial insemination. This farmers have done for themselves without resorting to government assistance.

I do not want to leave the impression that cooperatives are a cure-all for the farmer's problems; they are not. Nor do I want to leave the impression that cooperatives are not subject to the pitfalls and ups-and-downs characteristic of all business. Cooperatives are difficult to organize and require the same competent management and direction essential to any business. In addition to the problems confronting other business, cooperatives have such added responsibility as membership records, membership relations, and annual meetings.

The point I want to stress as strongly as possible is that despite all the farm programs yet devised, there is a great need for cooperatives. Through cooperatives farmers can set the pace in improving the quality of farm supplies, reducing the costs of farm supplies, and improving the service connected with the handling of farm supplies including electric power. Through cooperatives farmers can set the pace in improving harvesting methods, improving the grading of farm products, reducing spoilage, improving quality and promoting orderly marketing. Through cooperatives farmers can set the pace in processing their products, directing research, and improving distribution. Through cooperatives farmers can pioneer in finding new uses for their products and expanding their markets both at home and abroad. Through cooperatives farmers can take the initiative in the upgrading of the diets of the American people through a sound program of education in nutrition and food values and thus help remove our surpluses by converting them into better food to build better bodies. No farm program yet devised can offer the farmers as much hope in the future in these fields as

the cooperative. Nor can any farm program place the incentive as directly upon the farmer or decentralize responsibility for decisions and performance as does the cooperative.

In doing these things for themselves it does not follow that farmers will drive from the field those who handle farm supplies and products as third persons provided the latter are equally alert and efficient. I am suggesting no preferential status or privileges for the cooperatives. I think farmers have amply demonstrated that their cooperatives can hold their own when given an equal opportunity.

Following the hectic experience of cooperatives in the Sapiro and Farm Board days many farm leaders, including some agricultural economists, tended to push cooperatives to the background and pin their faith in government administered programs for agriculture. I suggest you check back through the titles of the articles carried by the JOURNAL OF FARM ECONOMICS or the books pertaining to national farm policy and note the lack of emphasis on cooperatives in the past few years. The JOURNAL OF FARM ECONOMICS has gone for as long as 2 years at a stretch without carrying a single article on farmer self-help through cooperatives. Incidentally I was pleased to note that Professor John D. Black included a statement on cooperatives in his article in the August 1947 issue of the JOURNAL. I hope this marks the beginning of a trend. During the past few years numerous books have been written by some of our most noted farm economists covering the scope of farm policy as they saw it, but making no mention whatever of farmer cooperatives. About a year ago I wrote the author of one such book which received national recognition, pointing out the fact that in outlining a national farm program he had made no mention whatever of the need for improving the quality of farm supplies or of improving marketing, processing and distribution of farm products or of what cooperatives can do in that field. He replied saying that that was such a big field in itself that he could not cover it in his book and therefore had omitted the subject entirely. I would have felt more reassured that such was the real reason if in the preface or elsewhere in the book he had made this explanation. I hope I am not unkind when I say that some farm leaders have gotten so engrossed in government programs that they tend to look upon cooperatives as unimportant to a national farm program. Despite this fact, farmer cooperatives have made un-

precedented progress during the past 15 years. I believe that agricultural economists generally will do well to take a fresh look at what farmers can do for themselves through cooperation.

I want to leave with you my conviction that cooperatives have an important place in a sound farm economy. Let me repeat that basically cooperatives are a mechanism of self-help and can do much to provide needed services for farmers. They fill a need not filled by any farm program yet devised. Cooperatives are not a cure-all for the troubles of agriculture but they can make important contributions in improving agricultural conditions.

DISCUSSION*

MARTIN ABRAHAMSEN

North Carolina State College of Agriculture

The ideas presented by Dr. Koller in his paper, "Cooperatives in a Capitalistic Economy," are sound and tangible. Such observations as I make therefore largely will be for the purpose of directing greater emphasis to some of the ideas he has set forth.

In the vernacular of the college gridiron we would say that Dr. Koller has taken us "back to fundamentals." His consideration of such items as cooperative principles and characteristics, similarities and differences between cooperatives and other private enterprise, and cooperatives as agencies for greater efficiency, reduced cost, and monopolistic control is basic in understanding the role that cooperatives occupy in a capitalistic economy.

At times cooperatives have encountered difficulty because their leaders have not understood sound economic principles, or, in any event, they have flouted them. If cooperatives are to make significant progress, they will need to stick to fundamentals, fundamentals based on established cooperative principles and sound economics.

Cooperatives as a Part of Modern Capitalistic Economy

In an interpretation of a capitalistic economy, it seems important that we stress what may be termed the "modern aspects of capitalism." Examination of the writings of cooperative leaders indicates that too frequently their views on capitalism have been restricted to the concepts of rugged individualism and individual entrepreneurship. While it generally is recognized that the farm enterprise is among the last strongholds of our economy where these concepts have significant application, it should be understood that cooperatives, as business agencies, operate in an arena characterized by highly integrated and giant corporations, enlarging spheres of government intervention, and imperfect competition.

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947.

This suggests that the economy in which farmer cooperatives find themselves is the outgrowth of an ever-changing evolutionary process. It is an economy in which we witness the impacts of new techniques, the emergence and disappearance of markets, and a shift from simple household crafts to the modern business corporation.

No one will deny that it is important for cooperatives to try to evaluate the position they occupy in our present day economy. While I appreciate the difficulties, I submit, however, that, if we are to establish adequate guideposts for these associations, such guideposts will have little value unless they blaze the trail for adjustment to the kind of capitalistic economy that will evolve in the decades ahead. If economics is to serve most effectively, we have the responsibility of interpreting for cooperatives the direction that our economy of the future will take. In the past the concern of cooperatives at times has been too much that of attempting to keep their economic footing on ground that is slipping away from them; witness the efforts of many livestock shipping associations to maintain their operations about terminal markets at the time that economic forces were contributing to the development of direct marketing. The basic job rather is that of attempting to establish a sound footing for the years ahead.

Cooperatives and the Role of Government

While I share with Dr. Koller the view that cooperatives and other private business enterprises are in substantial agreement as to the place of government in business, I cannot quite share his views as to the amount of intervention desired by these segments of our economy. Business often has asked for some of the most extensive forms of intervention. Cooperatives with their interest in marketing arguments and quotas, in protective tariffs, and, on occasions, in an endemic tendency to seek to monopolize markets are no exception. Indications are that whether or not business agencies—cooperative or non-cooperative—look with favor or scorn on many aspects of government intervention is more a matter of time, place, leadership, and economic weather than of the type of business organization. Cooperatives are in need of a penetrating and objective analysis to determine to what extent they as well as private enterprise are to be found among the "... four horsemen—fixed prices, low turnover, restricted production, and monopoly control," which Thurman Arnold said "rode through our economy from factory to farm." In any event it is a disservice to cooperative endeavor to have some of its spokesmen pass objectives and principles for day to day practices without first examining these practices to make certain that they really conform to stated objectives and principles.

In spite of the long-time interest that cooperatives seem to have in a minimum of government intervention, I venture the prediction that, irrespective of the results of the election in November 1948, the long-time trend is up in the degree of government intervention that will confront cooperatives in the years ahead. To expect farmer cooperatives in their present state of development to assume major responsibility for keeping private business in line is saddling them with more responsibility for "moral regeneration" than they now seem prepared to assume.

Cooperatives as Farmer Agencies

In appraising the role of cooperatives in a capitalistic economy there is reason to believe that more emphasis should be given to the fact that they are in effect agencies of farmers and as such serve primarily as an extension of farming activities. This is but another way of saying, as has been pointed out, that it is through the establishment of cooperatives that farmers can most effectively integrate their business operations. Furthermore, in this integration is found a logical explanation for the capitalistic motives behind the formation of farm cooperatives and the fact that at the same time these agencies are but a means to an end and not an end in themselves. It is by such integration that farmers can establish anti- or, more properly, counter-monopoly instruments. In other words, as our modern economy has moved in the direction of imperfect competition, it is through the establishment of their own market agencies that farmers can hope to make their influence felt—in countering or correcting growing monopolistic tendencies.

It is by this means that farmers can hope to maintain or improve their status as individual capitalists. This idea was well put by the late Dr. Stokdyk when he stated that cooperatives are “a rival and a partner of the American system of free enterprise.” This is to say that they are a part of the capitalistic solar system and not an outside comet paying periodic visits which may be disturbing or which come into existence only when the economic weather is especially unpredictable. The issue is: will they contribute to sufficient economic improvement fast enough to head off more drastic action?

With respect to the conclusions advanced by Dr. Koller I would observe: (1) that a stronger case could be advanced to show that modern cooperatives, as they seek to correct the abuses of capitalism by serving as a balance wheel in our economy, in reality have the opportunity for outdoing other private enterprise in maintaining what we have come to think of as a capitalistic economy and, (2) that, while I sympathize with Dr. Koller in his hope that cooperatives will serve as a bulwark in maintaining a free capitalistic economy, it appears to me that it will be necessary for cooperatives to develop greater aggressiveness and resourcefulness if they are to make significant progress in the realization of this goal.

Cooperatives and a Sound Farm Economy

In his paper, “The Place of Cooperatives in a Sound Farm Economy,” Mr. Davis has introduced a topic that is in need of further development.

In appraising the role of cooperatives in a sound farm economy I suggest that further attention should be directed to an objective analysis of such broad problems as: (1) the role of cooperatives, legislation, and state ownership as instruments for monopoly control, (2) the place of cooperatives in eliminating wastes from competition, duplication of plant facilities, “irrational” consumption and advertising, and speculation and depressions, and (3) the contributions that cooperatives can make to a sound farm economy by (a) reducing inequalities in wealth and income, (b) establishing reasonable prices, (c) maintaining individual entrepreneurs, (d) minimizing government intervention, and (e) developing an understanding of the

economic aspects of market forces on the part of cooperative members. Furthermore, I submit that cooperatives need to give more attention to the interdependence of various segments in our economy as well as to show increased awareness of the extent to which they may contribute to national welfare.

Incidentally, I should like to direct brief attention to the reference to Irish potatoes made by Mr. Davis. As a representative of a state sharing rather considerably in the 80 million dollars, I would like to say that the efforts of a regional cooperative in attempting to deal with this problem were extensive and the tribulations were many. I submit that until cooperatives show ability to grapple with just such problems we cannot be too critical of government intervention. Neither can we expect cooperatives to go as far in correcting prevailing abuses in our capitalistic economy as enthusiasts would lead to believe is possible.

As we examine the performance of cooperative associations we should recognize that there is no room for complacency. If greater progress is to be made in adjusting cooperative performance to our modern capitalistic economy, it calls for greater viability in operation, increased aggressiveness in establishing services that farmers need and desire, and more resourcefulness in developing the types of agencies best suited to serving farmers.

DISCUSSION*

W. L. BRADLEY

American Institute of Accountants

Professor Koller has eminently succeeded in establishing the Cooperative as a proper and integrated part of a capitalistic economy. He has drawn a splendid series of parallels between the principles and foundations, the points of view and the motives of Cooperatives, particularly Farmer Cooperatives, and what I shall term proprietary business. This is of particular importance in view of the present tendency of interest antagonistic to Cooperatives to mislead and misinform the public into believing that the Cooperative is an instrument of Socialism, totalitarianism or other form of Un-American sociology. In fact, Dr. Koller has done well to emphasize that the Farm Cooperative is, in fact, a bulwark of defense against statism.

In the sphere of economics, he has done well to stress their utility as pace-setters—measuring yard sticks—a regulatory process, which I believe to be one of the most important economic purposes they serve.

Again, he has well stated the economic effect of the Cooperative as a curb to monopoly, the while pointing out and stressing the lessons to be learned from past experience that monopoly in cooperative guise defeats the ends sought—that cooperatives need the stimulus of keen competition,

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947.

as does any business enterprise, to effect economical efficient public service.

Finally, he makes an effective case for the utility of the Cooperative as a curb, or safeguard, against extended and unwise participation of Government in Agriculture, by aiding and stimulating farmers to solve their own economic problems.

Mr. Davis, too, in directing his review to the impact of Cooperatives on our agricultural economy has stressed many of the same factors and some others.

He has well stated the results of cooperative research and ingenuity in utilizing what formerly were surplus commodities, destined for waste and destruction; by conversion and processing of surplus perishables into non-perishable form, suitable for marketing in an orderly manner paced to the needs for consumption, thereby at once benefiting both the consumer and the producer, by furnishing new and useful products, and by stabilizing markets by levelling the peaks and valleys of prices which inevitably accompanied the feasts and famine periods with respect to supply. Surely here is an economic development of note.

He too cites the regulatory purpose and effect—the pace setting function of the cooperative, and further cites the conditions reported in the so-called “Raines report of the N. Y. Legislature” as official recognition of the need for a corrective; and the inspiring example of a great farmers cooperative in furnishing that effective regulatory force.

The points stressed thus far in these papers, aside from making a fine case for the cooperative as an appropriate instrument in a capitalistic economy, have stressed primarily the effect of the cooperative in the agricultural economy of the nation. It doubtless is axiomatic that in affecting favorably the economic status of agriculture, the cooperative improves the entire national economy.

I have long been convinced that the prime role which cooperatives can play in improving our farm economy, are those which have been so ably reviewed here—and that is of an effective regulatory force:

To set standards of quality

To give the farmer a voice in naming specifications of supplies and equipment purchased, and grades of products marketed.

To regulate, but not control prices, and curb monopoly through effective competition.

All farmers benefit by these factors, whether members of cooperatives or not.

Actual savings reflected in patronage refunds, of course, represent an added economic advantage to the cooperative patron—though the cooperative justifies its economic existence by the first-named factors, irrespective of the latter.

However, the cooperative effects another important factor in the field of farm economics to which neither of the papers presented referred. By this I mean that the cooperative offers the only patent solution to the problem faced by the individual farmer from time immemorial—the necessity of selling his produce on a wholesale market level, though he had had to buy his production supplies at a retail price level. The cooperative

has effectively reversed, or at least largely corrected this situation in instances where it has been utilized.

I am sure that the gentlemen who have presented these papers make no claims that they have reviewed all of the factors by which the existence of successful farm cooperatives affect our national, or even our agricultural, economy. The mere limitations of time would prevent their doing so, were they to attempt it.

For my part in this discussion, I find I cannot, and do not take issue with either of them with respect to the compelling facts and conclusions which they have stated. Therefore, it may be appropriate for me to briefly review other important factors by which the *full* impact of farmer cooperatives on our national economy may be measured—factors which should have the expert consideration of our able farm economists—that they may be properly weighed, and their effects fairly evaluated, for they have a far reaching effect in economic fields far removed from the farm, and therefore, must meet the test of public understanding and esteem.

The limitations of time allowed for this review will permit my touching only on a couple of the phases not covered by the preceding speakers.

The first of these is the effect of the wider distribution of the avails of agricultural production. Under proprietary ownership the avails are concentrated in the centers of capital and in the hands of investors. The extent of the recirculation of these avails by such owners may differ, and the manner of the recirculation obviously will differ vastly from the application of these same avails when received by the patrons of the farmer cooperative. The latter plows such avails back in the community where he lives. There is more mass spending in the community, for the farmer can and does use such avails to patronize and pay the local merchant, machinery dealer, doctor, dentist and the professional man up and down Main Street for goods and services which he would not otherwise be able to pay for. I do not contend that when these avails are directed solely into the hands of the owners of the capital of the proprietary organization that they then and there become frozen, or do not have any beneficial effect on our general economy through recirculation by spending, but I do contend that there is a vast difference in the effect on our economy in the spending of five-thousand dollars for a mink coat and the spending of the same five-thousand dollars at the grass roots by a multiple number of spenders and for family or production necessities.

I believe here is a challenge to economic research—to evaluate the impact of this fundamental change in the course of circulation of these margins or *profit* on our national economy, and we should evaluate further. granted that even though equivalent amounts of such profits were to be spent either by the investor in the one instance, or the farmer producer in the other—which type of spending accomplishes the greatest benefit to our people as a whole.

The second phase upon which neither of the speakers touched involves a fair evaluation of the impact of cooperatives on unemployment. Let us grant for the sake of this discussion that in the conduct of the cooperative enterprise as compared with that of an individual proprietor the individual

proprietor is deprived of his profit beyond the value of his services. But against this factor able economists should endeavor to weigh these factors:

First, there is no loss of employment. The manager takes the place of the owner, at least in the local business enterprises.

Secondly, other employees are as much needed to cause the business to function as a cooperative as for proprietary enterprises. No one is thrown out of work. I have had the argument advanced to me that the cooperative is supposed to aim toward such efficiency that it can function with a lesser number of employees, and therefore thus deprive some individual of employment. My observations through many years of experience have indicated to me that the proprietary business can and usually is run with the same motives toward efficiency, and in many instances with better achievement than the cooperative. One of the besetting problems of certain cooperatives reflected in the experiences of some is that of nepotism, which is not as prevalent in proprietary enterprises.

This factor of relative employment should be the subject of able economic research, so that its actual effect on our economy—beneficial or otherwise—may be accurately measured, and evaluated.

METHODS OF FINANCING RELATED TO ASSET CHARACTERISTICS OF FARMS*

DONALD C. HORTON
Bureau of Agricultural Economics

THE asset requirements of a business firm, whether in agriculture or in some other field, doubtless condition the financing of that firm. But the asset structure of a firm often is symptomatic also of a still broader group of economic characteristics of that firm that may influence its financing. Characteristics of the asset structure, therefore, can sometimes serve as indices of even more general economic characteristics. Thus, a distinctive type of farm financial organization¹ may be found to be associated with a certain type of farm asset structure, yet the important fact may be that both the asset structure and the financial organization stem from such diverse sources as the nature of the available physical resources, the principal products produced, and the importance of management in farming success.

In the main, the emphasis in this paper is on observable relationships between financial organization and internal economic characteristics of farms in which asset characteristics are used as principal indices of variation in internal economic characteristics. As the analysis is based on published data and survey materials collected for other purposes, only county data are available. The objective is to determine whether variations in broad patterns of financial organization of farms go along in any consistent manner with variations in the asset and other internal economic characteristics of farms. For example, do the asset and other economic characteristics of farms vary in any consistent way with the extent to which agriculture is financially self-contained (financed largely by the operator's own funds)? Do any distinctive characteristics of the agriculture stand out where credit has a very important place in the capital structure of farms? In this brief paper only a few major points can be covered by way of indicating some of the more important general relationships that are found in this kind of an analysis.

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¹ The term "farm financial organization" is used here to cover all financial arrangements under which the farm firm obtains the use of real estate and other assets used in farming. Thus, ownership of all assets by the operator, with no debts, is a type of financial organization that is in sharp contrast to one in which landlords and creditors hold a large part of the equity in the assets used by the farm operator.

It is apparent that only a few of these observable relationships and some of the possible reasons for these relationships can be presented here.

The illustrative data used in this paper are taken from a larger study that is being made jointly by the Bureau of Agricultural Economics and the National Bureau of Economic Research. One phase of this larger study has involved the testing of several hypotheses regarding longer run relationships between financial organization of farms, on the one hand, and asset and other economic characteristics of farms, on the other. Pertinent data for 1940 have been developed from many sources (including some rough estimates for missing items) for each of 108 widely distributed counties. The 108 counties were selected (within the limits set by availability of data) to reflect wide variation in the economic characteristics of agriculture. These county data include estimates of: (1) Value and composition of total physical assets used in agriculture, (2) equities of different investor groups in these assets, (3) average assets per farm, and (4) data reflecting indirectly other economic characteristics of the agriculture not revealed by asset data.

A major part of the task has been to develop these estimates so that they are reasonably comparable by counties. It is possible then to group counties according to selected characteristics of the financial organization, or according to selected asset or other economic characteristics of the agriculture, and then to tabulate other pertinent items for each group of counties. From these groups of counties a number of "composite counties" can be constructed which have certain distinctive characteristics from the view point of either the financial organization or the economic characteristics of farms. Observations can then be made to determine what is associated with what. Any conclusions regarding causal relationships, of course, depend on more than mere evidence of association, but persistent associations at least give support to (or raise doubts regarding) certain hypotheses regarding causal relationships.

The emphasis in this paper is mainly on the "what is" aspect of the topic discussed. It is a long step to the question of "what should be," or "what would be under different conditions"; but these questions can hardly be answered with any degree of satisfaction without a fairly clear idea of (1) what relationships between financing and asset characteristics of firms are actually found in agriculture and (2) the reasons for these relationships.

As a convenient summarizing device for the purposes of this paper, three composite counties have been constructed for most of the comparisons. Composite county A in all of the comparisons is high as regards the item used as a basis for the construction of the composite counties; C is low and B is intermediate in this respect.² The A county for a particular comparison cannot be constructed directly, however, from the top 36 counties in an array of the entire 108, because the financial organization of farms in 1940 doubtless was greatly influenced also by their previous financial experience, particularly during the 1930's.³ A rather simple stratification procedure has been used to minimize the separate influence of the financial experience factor in the several comparisons of composite counties in this paper. (1) The 108 counties were arrayed from worst to best financial experience in the thirties, as indicated by the percentage decline in the value of total physical agricultural assets from 1930 to 1940. (2) The array of the 108 counties by capital asset change was broken into four equal groups of 27 counties each. (3) The counties in each of the four 27 county groups were then independently arrayed from high to low according to the particular item to be used to construct the composite counties. (4) The 9 counties at the top of the array for each of the four 27-county groups were then combined into a group of 36 counties from which data for the composite A county were computed.⁴ Composite B and C counties were similarly developed from the middle and bottom 9 counties in each 27-county array. As is true with most summarizing devices, some important relationships doubtless are obscured by the use of only three composite counties for each comparison.

² A, B, and C thus are merely convenient designations for high, medium, and low as regards the item used as the basis for the construction of composite counties. The meaning of A, B, and C changes throughout the paper according to the basis on which groups of counties are compared.

³ The problem that arises here can be illustrated from a tabulation in which estimated operator equities in physical assets are used as the basis for grouping the counties into three groups of 36 counties each. Estimated operator equities in the top 36 counties were 64 percent of total physical assets; in the middle 36 counties they were 49 percent; and in the lowest 36 counties they were 33 percent. But the average reduction in asset values during the thirties was 21 percent in the top 36 counties, 14 percent in the middle 36 counties, and 31 percent in the bottom 36 counties. As the level of operator equities in 1940 doubtless was influenced by their financial experience during the thirties, it is difficult to reach any conclusions from this grouping of counties regarding independent relationships between the level of operator equities and the internal economic characteristics of farms.

⁴ For more detailed study, each of the 27 county groups of counties was analyzed separately, but for this brief paper only the combined groups are used.

Because each composite county (A, B, and C) reflects about the same proportion of counties with good and bad financial experience in the 1930's, there is a tendency for the influence of this factor to average out in the comparisons among the three composite counties. This permits comparisons of composite counties in which any longer run relationships between financial organization and internal economic characteristics of farm firms have a better chance to become apparent than would be the case without stratification of the data by capital asset change.

I

The above technique can be used to throw light on a number of relationships. For example, what internal economic characteristics of farms were associated with high, medium, and low equities of farm operators in physical assets used in agriculture in 1940? Operator equities in physical assets in the composite A county constructed for this purpose were 63.1 percent, in B they were 47.5 percent, and in C they were 35.2 percent. The differences in operator equities among the three composite counties thus are great enough to permit testing for associated differences in the asset and other internal economic characteristics of the agriculture of the three counties. Selected items are shown in table 1.

Differences in asset characteristics between composite counties A and C stand out very sharply. In A (with 63 percent operator-equities), physical assets per farm were relatively low, land was a low percentage of total physical assets, cropland was a low percentage of total land in farms, buildings were a high percentage of total physical assets, and farmers' dwellings (1930) also were a high percentage of total real estate value. But the difference between A and C as regards importance of non-real-estate assets (physical) was not marked. As data on non-real-estate assets other than livestock and machinery and equipment are fragmentary, the estimates of total non-real-estate assets are not accurate enough to make small differences in the averages of much significance.

Further information about these three composite counties that is not shown by the above data on asset characteristics is revealed by a tabulation of value of product data in table 1. Less than one-half of gross product throw-off (value of product) in the A county was in the form of sales of crop and livestock as compared with over three-fourths in C. Dairy product sales were much more important in A

TABLE 1. SELECTED INDICATORS OF ASSET AND PRODUCT THROW-OFF CHARACTERISTICS OF FARMS IN THREE COMPOSITE COUNTIES¹ WITH DIFFERENT LEVELS OF OPERATOR EQUITIES IN PHYSICAL ASSETS IN 1940

Selected indicators of asset characteristics ²	County A (operator equities 63 percent)	County B (operator equities 47.5 percent)	County C (operator equities 35 percent)
1. Average physical assets per farm ³	\$6,565	\$8,808	\$10,053
2. Percentage of total physical assets represented by land	42.6	53.1	60.6
3. Percentage of total physical assets represented by buildings	31.0	22.0	16.0
4. Percentage of total physical assets represented by non-real-estate assets	26.4	24.9	23.4
5. Percentage of total acreage in cropland	35.6	39.1	45.9
6. Value of farmers' dwellings as a percentage of the value of farm real estate in 1930	24.1	15.7	12.1
Selected indicators of product throw-off characteristics ²			
1. Percentage of value of product from crop and livestock sales	47.3	65.6	76.1
2. Percentage of value of product from dairy product sales	22.7	10.0	7.1
3. Percentage of value of product from other product sales	9.8	5.5	3.3
4. Percentage of value of product represented by home consumption	20.2	18.9	13.5
5. Average number of days of off-farm work by the operator	49	32	26

¹ The average percentage decline in asset values during the Thirties was approximately the same for all three of the composite counties
² Except for average physical assets per farm, each county was given equal weight in the averages. Data on product throw-off are for 1939.

³ Weighted by number of farms after adjustment to eliminate farms operated by croppers in the southern States.

than in the other two composite counties. Home consumption of farm products was high in A as was also off-farm work by the operator. If total value of product included also earnings of the operator from off-farm work and the imputed value of housing services, the differences between A and C as regards importance of crop and livestock sales probably would be even greater.

Even from the foregoing data, it is possible to suggest certain reasons why capital might be supplied more largely by the farm operator in a county like A than in one like C. A farmer with \$3,000, for example, would have had over 45 percent of the amount needed in 1940 to finance an average farm business in A, but such a farmer would have had less than 30 percent of the amount needed in C. On the other hand, agriculture such as that described in A probably is not so attractive as that in C to nonfarmer investors. For one thing, both the asset and product throw-off characteristics of the agriculture in A suggest that variations in return on capital would be dependent more on variations in management and other personal characteristics of the farmer than in C. Income from capital probably is harder to distinguish from labor income in A than in C.

The way the nonoperator portion of the equities (those of creditors and landlords) was distributed in 1940 in the three composite counties also throws some additional light on the reaction of outside investors (creditors and landlords) to the different kinds of agriculture. In the A county the 37 percent of total assets represented by combined creditor and landlord equities was about equally divided between these two groups; in B the 52 percent held by these "outsiders" was distributed between creditors and landlords in a ratio of 42 to 58; and in C the 65 percent held by them was distributed between creditors and landlords in the ratio of about 40 to 60. Both creditor and landlord equities in total assets were higher in C than in A, but the difference in landlord equities between these two composite counties was much the greater. Why the outside capital in A was supplied more largely by creditors than in C, and why the landlord portion was higher in C, presents a number of questions that are considered later when composite counties are constructed to reflect variations in the creditor-landlord equity ratio.

It is not feasible to break down the landlord equities in the three composite counties by types of investors, but reasonably accurate breakdowns can be made of the creditor equities. Because of the substantial margin of error in the estimates of non-real-estate loans

held by lenders other than the four principal institutional lenders, only a rough breakdown by real estate and non-real-estate loans is feasible. However, it appears that real estate loans were about 70 percent of total loans in A as compared with less than 60 percent in B and C. Real estate loans, however, were only 18 percent of total value of real estate in A as compared with 21 percent in C. The difference between A and C in this respect was more in the percentage of farms under mortgage than in the ratio of mortgage debt to value of mortgaged farms. Only 41 percent of the farms in A were under mortgage as compared with 47 percent in C.

The real estate loans in these three composite counties can be broken down further by four principal lender groups. The Federal land banks and the Federal Farm Mortgage Corporation held about 43 percent of total farm mortgage debt in A as compared with 52 percent in C. Insurance and mortgage-investment companies also held a substantially lower percentage of the total in A than in C—8 percent as compared with 17 percent. But both banks and the residual lender group, which includes individuals, held higher percentages of the total in A than in C. Thus higher operator equities and greater reliance on local sources of real estate credit appear to go together.

Only the data on non-real-estate loans for the four principal institutional lender groups will bear further analysis. In A, the loans of banks and PCA's were only about 9 percent of total non-real-estate assets, whereas in C they were 18 percent. FSA and emergency crop and feed loans in A were only 3.6 percent of total non-real-estate assets as compared with almost 11 percent in C. In relation to non-real-estate assets, therefore, the non-real-estate loans of both business and emergency credit agencies were low in the composite county with high-operator equities.

The foregoing data represent only a limited number of indices which might conceivably be used to observe relationships between (1) the extent to which agriculture was financed in 1940 by the operator's own capital, and (2) the economic nature of farm firms as reflected mainly in indices of asset and product throw-off characteristics. Yet they indicate that the agriculture that was largely financed with operators' own funds differed in a number of respects from that in which landlords and creditors supplied larger parts of the capital used in farms. As farms were constituted in 1940, the demand for outside capital in A probably was less than in C, and at

the same time in A the supply of outside investment funds probably was restricted by the nature of the agriculture. Nothing in these data, however, indicate to what extent the capital structure in A was shaped by demand factors and to what extent by supply factors in the agricultural capital market. To answer this question would involve much additional data, particularly data on the possibilities of efficient use of capital for farm enlargement if additional outside funds were readily available to finance the agriculture in A. This, however, gets into the field of potential financial organization under different conditions, an important topic that cannot be analyzed with the kind of data used in this study.

II

When another set of composite counties (A, B, and C) are developed from the same 108 counties to show the asset and other characteristics of agriculture that were associated with differences in landlords' equities in farms in 1940, it is found that the A county constructed on this basis is much like the C county in the preceding operator equity tabulations.⁵ For this reason, a discussion of these tabulations is omitted in this paper. But when a third set of composite counties with *creditor equities* in physical assets as the basis of the classification are set up, it is difficult to find any very clear differentiation among the A, B, and C counties in asset and product throw-off characteristics. Selected data are shown in table 2. Little difference is found among the three composite counties in such indices as average capital assets per farm, the distribution of assets among land, buildings, and non-real-estate assets, the proportion of total land in farms represented by cropland, or the relation of the value of farmers' dwellings to total value of farm real estate. Nor did the distribution of product throw-off among major categories differ much in A from that in C. The three counties differed, however, as regards the importance of off-farm work. Off-farm work in A (high creditor equities) was definitely less important than in B and C where creditor equities were lower.

The data in table 2 on creditor financing suggest that total creditor equities include too diverse a group of capital contributions for variations in creditor equities to bear any consistent relation *in toto* to variations in the internal economic characteristics of agricul-

⁵ In fact, with only a few borderline exceptions the counties used in the A county for operator equities fall in the group used in the C county for landlord equities.

TABLE 2. SELECTED INDICATORS OF ASSET AND PRODUCT THROW-OFF CHARACTERISTICS OF FARMS IN THREE COMPOSITE COUNTIES¹ WITH DIFFERENT LEVELS OF CREDITOR EQUITIES IN PHYSICAL ASSETS IN 1940

Selected indicators of asset characteristics	County A (creditor equities 29.7 percent)	County B (creditor equities 21.8 percent)	County C (creditor equities 16.3 percent)
1. Average physical assets per farm	\$9,258	\$8,947	\$7,683
2. Percentage of total physical assets represented by land	53.5	50.3	52.5
3. Percentage of total physical assets represented by buildings	20.7	24.6	23.8
4. Percentage of total physical assets represented by non-real-estate assets	25.8	25.1	23.7
5. Percentage of total acreage in cropland	41.5	42.2	36.9
6. Value of farmers' dwellings as a percentage of the value of farm real estate in 1930	16.1	16.3	16.7
Selected indicators of product throw-off characteristics			
1. Percentage of total value of product from crop and livestock sales	66.9	61.7	60.7
2. Percentage of total value of product from dairy product sales	10.3	17.1	12.3
3. Percentage of total value of product from other product sales	4.7	6.1	7.7
4. Percentage of value of product represented by home consumption	18.1	15.1	19.3
5. Average number of days of off-farm work by the operator	26	37	43

¹ See footnotes to table 1 for explanation of methods used to summarize the county data.

ture. It is possible that the failure of asset and product throw-off characteristics to vary consistently with variations in the level of creditor equities results in part from the large volume of emergency financing that took place during the thirties. The A county (with high creditor equities) reflects the influence of those counties in which a large volume of emergency loans had accumulated during the thirties. It is worth noting also that in A about 47 percent of the loans were non-real-estate loans whereas these loans accounted for only about 28 percent of total loans in C.

More consistent relationships are found, however, when three additional composite counties are constructed on the basis of high, medium, and low *real estate debt* in relation to *real estate assets*. Comparative data are shown in table 3. In the A county constructed according to this definition, total real estate debt was equal to almost 24 percent of total real estate value. In the B county it was equal to 18 percent, and in the C county it was equal to about 14 percent. Average physical assets per farm in the A county were 147 percent of the average for C, and the average value of real estate per farm in A was 145 percent of that for C. Farms in A thus averaged larger than in C when measured by physical assets, but the percentage distribution of assets in A among land, buildings, and non-real-estate assets was about the same as in C. Cropland, however, was almost 50 percent of total acreage in A as compared with about 30 percent in C.

Composition of product throw-off differed somewhat between the A and C counties constructed to reflect variations in the importance of real estate debt, but less marked differences are found than in most other tabulations. Off-farm work, however, was definitely less important in A than in C.

It could be argued with some plausibility that the higher than average capital requirements in the composite county with high real estate debt (county A) made it necessary for operators to obtain a larger than average proportion of capital from outside sources than in the county with low real estate debt (county C). But the asset and product throw-off characteristics of farms in the A county were no more favorable to landlord investment than were those in C. In fact, landlord equities were about 30 percent in both the A and C counties. Real estate credit appears to have fitted into the capital supply picture at a place where a greater than average need for outside capital was present but where additional direct

TABLE 3. SELECTED INDICATORS OF ASSET AND PRODUCT THROW-OFF CHARACTERISTICS OF FARMS IN THREE COMPOSITE COUNTIES¹ WITH DIFFERENT PERCENTAGE RATIOS OF REAL ESTATE DEBT TO REAL ESTATE ASSETS IN 1940

Selected indicators of asset characteristics	County A	County B	County C
	(Real estate debt 23.8 percent of value of farm real estate)	(Real estate debt 18.3 percent of value of farm real estate)	(Real estate debt 19.7 percent of value of farm real estate)
1. Average physical assets per farm	\$10,314	\$7,420	\$7,025
2. Percentage of total physical assets represented by land	51.0	51.0	54.4
3. Percentage of total physical assets represented by buildings	23.7	24.0	21.3
4. Percentage of total physical assets represented by non-real-estate assets	25.3	25.0	24.3
5. Percentage of total acreage in cropland	49.4	41.6	29.8
6. Value of farmers' dwellings as a percentage of value of farm real estate in 1930	15.9	17.9	15.4
Selected indicators of product throw-off characteristics			
1. Percentage of value of product from crop and livestock sales	66.0	60.1	62.5
2. Percentage of value of product from dairy product sales	15.9	13.3	10.5
3. Percentage of value of product from other product sales	6.1	6.6	5.9
4. Percentage of value of product represented by home consumption	12.0	19.4	21.1
5. Average number of days of off-farm work by the operator	27	36	43

¹ See footnotes to table 1 for methods used to summarize the county data.

investment by landlords did not come in to fill the gap. It is possible that the real estate loan contract with the usual margin of security permitted loan capital to flow to farms that did not provide so attractive outlets for direct investment by nonoperators as are found elsewhere where average capital assets per farm were high.⁶

A further tabulation based on the *relative importance* of creditor and landlord equities is presented in table 4. In the A county in this tabulation, creditor equities were 58 percent and landlord equities 42 percent of the total for these two groups. At the other extreme, the creditor equity in the C county was only 33 percent and the landlord equity 67 percent of the total for the two groups. This tabulation permits a comparison of the agriculture in composite counties with markedly different creditor-landlord equity ratios. In these comparisons, however, it should be noted that operator equities were somewhat higher in the A county than in the C county—54 percent in A as compared with 44 percent in C.

The A county in table 4 has a number of points in common with the A county in the operator equity tabulation (table 1). In general the agriculture in the A county would not be expected to require as much outside capital as that in C. Moreover, the asset and product compositions in A are less favorable to direct investment by nonoperators than in C. Creditor equities appear to be more important relative to landlord equities where the added security of a loan contract may be required to get outside capital to flow to farms. In the C county average assets per farm were substantially higher than in A but capital flowed into this county more largely in the form of direct investment by landlords. The above data suggest that the relative importance of credit in the capital structure of agriculture is influenced by the willingness of nonoperators to invest directly in agriculture as well as by the needs of farm operators to control more assets than they can own with their own funds.

III

In the four illustrations presented up to this point, certain characteristics of the financial organization of agriculture have been

⁶ There is a suggestion from a more detailed study of the data that real estate debt tended to be low in two extreme types of agriculture. The one was a type in which very little outside capital was used either in the form of real estate loans or renting real estate from landlords. Operators financed this agriculture mainly with their own funds. The other type apparently provided such a good outlet for landlord investment that little real estate credit was used.

TABLE 4. SELECTED INDICATORS OF ASSET AND PRODUCT THROW-OFF CHARACTERISTICS OF FARMS IN THREE COMPOSITE COUNTIES¹ WITH DIFFERENT PERCENTAGE RATIOS OF CREDITOR EQUITIES TO COMBINED CREDITOR AND LANDLORD EQUITIES IN 1940

Selected indicators of asset characteristics	County A (creditor equities 57.7 percent of combined creditor and landlord equities)			County B (creditor equities 44.2 percent of combined creditor and landlord equities)			County C (creditor equities 33.1 percent of combined creditor and landlord equities)		
1. Average physical assets per farm				\$6,478			\$8,158		\$10,370
2. Percentage of total physical assets represented by land				43.2			53.9		59.2
3. Percentage of total physical assets represented by buildings				23.0			22.6		18.5
4. Percentage of total physical assets represented by non-real-estate assets				23.8			23.5		22.3
5. Percentage of total acreage in cropland				37.9			45.4		37.3
6. Value of farmers' dwellings as a percentage of total value of farm real estate in 1930				20.8			15.3		13.0
Selected indicators of product throw-off characteristics									
1. Percentage of value of product from crop and livestock sales				51.1			66.0		72.0
2. Percentage of value of product from dairy product sales				21.0			11.6		7.2
3. Percentage of value of product from other product sales				7.2			6.6		4.9
4. Percentage of value of product represented by home consumption				20.7			15.8		15.9
5. Average number of days of off-farm work by the operator				38			34		34

¹ See footnotes to table 1 for the methods used in summarizing the county data.

used as a basis for the development of composite counties, and data on asset and other characteristics of agriculture have then been summarized for these composite counties. Classification of data by certain key characteristics of the agriculture, with financial-organization data summarized, also may be instructive. For example, did the pattern of financial organization of agriculture in a composite county with average physical capital assets per farm of over \$15,000 differ appreciably from that in a composite county with average physical capital assets per farm of about \$4,000?

In the comparison presented in table 5 composite county A had average physical capital assets per farm of \$15,533, county B had \$7,256, and county C had \$4,000. In county A, over 48 percent of the farms were mortgaged as compared with 37 percent in C, but the ratio of real estate debt to the value of mortgaged farms was highest in B.⁷ Total real estate debt was equal to about 20 percent of total real estate value in A as compared with 16 percent in C, and in general the financial structure of agriculture in A was more complex than in C.

Differences in complexity of financial organization between these three counties are reflected in the distribution of equities among farm operators, landlords, and creditors. Operator equities were only 43.5 percent of total physical assets in A (high average assets per farm) as compared with over 52 percent in C (low assets per farm). Landlord equities were highest in A, but total creditor equities were about the same for all three composite counties.

Although this cross-tabulation fails to reveal any marked differences in total creditor equities when composite counties are constructed to reflect wide variations in average physical assets per farm, the composition of the creditor equities in the three counties differed in several respects. The land banks and the Mortgage Corporation held about 45 percent of total real estate debt in A as compared with 51 percent in C. Insurance and mortgage-investment companies, however, held 19 percent of the total in A as compared with about 6 percent in C. Banks, on the other hand, held only 7.4 percent in A as compared with 12 percent in C. There was less variation in holdings by individuals and miscellaneous lenders than for the other lender groups.

⁷ County B was also characterized by a high proportion of product throw-off from dairy, poultry, and poultry-product sales, a type of agriculture in which non-real-estate assets may possibly be financed with real estate credit to a greater extent than elsewhere.

TABLE 5. SELECTED INDICATORS OF FINANCIAL ORGANIZATION OF FARMS IN THREE COMPOSITE COUNTIES
WITH WIDE DIFFERENCES IN AVERAGE PHYSICAL ASSETS PER FARM IN 1940¹

Selected indicators of financial organization	County A (Average physical assets per farm = \$15,533)	County B (Average physical assets per farm = \$7,256)	County C (Average physical assets per farm = \$4,090)
1. Percentage of all farms under mortgage	48.3	43.3	36.9
2. Percentage mortgage debt of the value of mortgaged farms	38.6	42.3	38.9
3. Percentage mortgage debt of the value of all farm real estate	20.4	19.3	16.2
4. Operator equities in physical assets (percent)	48.5	50.0	52.3
5. Landlord equities in physical assets (percent)	33.8	27.6	25.1
6. Creditor equities in physical assets (percent)	22.7	22.6	22.6
7. Percentage of total real estate debt held by all lenders	100.0	100.0	100.0
1) Federal land banks and Federal Farm Mortgage Corporations	44.6	45.1	51.2
2) Insurance and mortgage investment companies	19.1	10.9	6.2
3) Commercial and savings banks	7.4	10.4	12.3
4) Individuals and miscellaneous lenders	28.9	33.6	30.2
8. Percentage non-real-estate loans of four lender groups of non-real-estate assets	17.8	20.3	24.6
1) Banks and production credit associations	14.1	12.5	12.8
2) FSA and emergency crop and feed loans	3.7	7.8	11.8

¹ See footnotes to table 1 for the methods used to summarize the county data.

Whereas it was in A (high capital assets per farm) that real estate debt was highest in relation to real estate value, it was in C (low capital assets per farm) that non-real-estate loans of the four principal institutional lender groups were highest in relation to non-real-estate assets. The percentage for these four non-real-estate lenders in A was 18 as compared with 25 in C. In A, however, FSA and emergency crop and feed loans were equal to only 21 percent of the total for the four groups, whereas in C they were equal to 48 percent of the four-lender-group total.

The relatively constant creditor equity for the three composite counties constructed according to average assets per farm thus is made up of widely different combinations of real estate and non-real-estate loans and of widely different combinations of loans by lender groups. This suggests that even though credit may have about the same quantitative importance in large and small farms, yet the functions performed by credit may be quite different.

It should be noted, however, that composite county A reflects the influence of several kinds of large-farm counties. The only distinctive thing about all of them is that the average amount of physical assets per farm was high. Moreover, in the A county, land was a high percentage of total assets, cropland was a high percentage of total land, crop and livestock sales were a high percentage of total product throw-off, and home consumption of farm products was a low percentage of total product throw-off. The financial structure of the large farm county (measured by assets) described above, therefore, was associated with these other internal economic characteristics of farms as well as with high average physical assets per farm.

Similar comparisons of financial organization can be made when differences between composite counties in the relative importance of crop and livestock sales in total product throw-off are made the basis of comparisons (see table 6). The A county, which was constructed to reflect a high proportion of product throw-off from crop and livestock sales, shows almost 83 percent of total value of product in that form. The B county shows 63 percent and the C county 43 percent. Product sales other than crop and livestock (mainly dairy and poultry) accounted for 7 percent in A, 18 percent in B, and 33 percent in C. By reversing the A and C counties therefore, the three counties in table 6 can be used also to reflect variations in product sales other than crops and livestock.

In the A county a relatively high proportion of farms under mort-

TABLE 6. SELECTED INDICATORS OF FINANCIAL ORGANIZATION OF FARMS IN THREE COMPOSITE COUNTIES WITH WIDE DIFFERENCES IN THE PERCENTAGE OF THE TOTAL PRODUCT THROW-OFF REPRESENTED BY CROP AND LIVESTOCK SALES IN 1940¹

Selected indicators of financial organization	County A (Crop and livestock sales 82.6 percent of value of product)			County B (Crop and livestock sales 63.1 percent of value of product)			County C (Crop and livestock sales 43.1 percent of value of product)		
1. Percentage of all farms under mortgage				45.6			42.6		40.4
2. Percentage mortgage debt of the value of mortgaged farms				36.8			41.6		41.4
3. Percentage mortgage debt of the value of all farm real estate				19.0			18.5		18.3
4. Operator equities in physical assets (percent)				38.1			48.2		59.6
5. Landlord equities in physical assets (percent)				38.6			27.4		20.3
6. Creditor equities in physical assets (percent)				23.3			24.4		20.1
7. Percentage of total real estate debt held by all lenders				100.0			100.0		100.0
1) Federal land banks and Federal Farm Mortgage Corporation				47.3			54.6		38.3
2) Insurance and mortgage investment companies				19.5			10.3		7.6
3) Commercial and savings banks				5.8			9.2		14.2
4) Individuals and miscellaneous lenders				27.4			25.9		39.9
8. Percentage non-real-estate loans of four lender groups of non-real-estate assets				23.4			23.8		15.2
1) Banks and production credit associations				16.9			13.0		9.2
2) FSA and emergency crop and feed loans				6.5			10.8		6.0

¹ See footnotes to table 1 for the methods used to summarize the county data.

gage and relatively low ratio of debt to value of mortgaged farms are found. Greater complexity of financial organization in A is reflected also in the high percentage of total equity in physical assets held by landlords. In A landlords held 39 percent as compared with 20 percent in C. Operator equities were 38 percent in A and 60 percent in C.

The land banks and the Mortgage Corporation held a substantially higher proportion of total mortgage debt in A than in C, but they held the highest percentage of the total in B. Insurance and mortgage-investment companies held 19.5 percent of the total in A and only 7.6 percent in C. Banks held less than 6 percent in A and over 14 percent in C. Individual, and miscellaneous lenders held almost 40 percent in C as compared with only about one-fourth of the total in A and B. The two groups of centralized lenders thus were least important in C where crop and livestock sales were a low percentage of total product throw-off.

The foregoing six tabulations are perhaps sufficient to illustrate some of the relationships that are found when the financial organization of agriculture is related across the board without regard to geography to certain key indices of asset and general economic characteristics of farms. It would be instructive also to present additional composite counties constructed to show variations in asset and other economic characteristics of agriculture that go along with variations in the relative importance of different credit sources. A few general observations based on these tabulations are included in the following section. A full discussion of this material, however, falls outside the space limits of the present paper. Attention is now directed to some of the over-all implications that seem to flow from this kind of analysis.

IV

The larger study from which materials for this paper are drawn was undertaken partly to test certain hypotheses regarding general relationships between financial organization in agriculture and the internal economic characteristics of farms. One of the major hypotheses to be tested was that a careful analysis of the available data would reveal general patterns of financial organization associated with different kinds of farm firms. The available data obviously are not adequate alone for a complete exploration of this general hypothesis, but the results so far are promising.

There is little doubt about the influence that income instability, and particularly long periods of drought and depression, exert on financial organization in agriculture. This can be readily illustrated from further tabulation of the data used in this study. The major problem in this study, however, has been to develop a technique which would permit putting the primary emphasis on possible longer-run relationships of internal economic characteristics of farms to their financial organization. It is believed that some progress has been made toward that more difficult objective, but much remains to be done before anything approaching definitive results can be claimed. Accordingly, the concluding observations set forth here must necessarily be tentative and subject to further checking and modification on the basis of additional research.

As this paper itself is in the nature of a partial summary of an empirical investigation, no attempt is made here to be all-inclusive in these observations. Instead, emphasis is placed upon some of the broader tentative conclusions that seem to be warranted by the data. These are of two kinds: (1) those relating to the specific subject matter investigated, and (2) those relating to the possible significance of the general approach followed in this study for research in agricultural finance.

Special observations from the data developed in this study (including some materials not presented here) may be listed as follows:

- (1) High operator equities in agricultural assets appear to be associated with moderate capital requirements per farm and with other asset and product characteristics that do not attract private investment for nonoperators in large volume. One factor that apparently is present where operator equities are high is a kind of agriculture in which assets other than land bulk large in total assets. Another is a type of product throw-off which suggests that variations among farms in return on capital are closely related to skill of management and personal characteristics of the operator. (Capital and labor income are closely related.) Counties with high operator equities are found in widely scattered areas in the sample of 108 counties but most of them have the above general characteristics in common.
- (2) Landlords appear to be more important in capital supply in agriculture where total capital requirements per farm are high and where asset and product characteristics make farms more suitable for direct investment by nonoperators without detailed management supervision. A high proportion of assets in land

and a high proportion of product in the form of cash field crops are among the characteristics of agriculture associated with heavy landlord investment. The data also supports to some extent the further hypothesis that landlords may be more willing to take the risks of fluctuating yields and prices in such agriculture than they are to take the risks of poor management (or incur the necessary management supervision expenses) on farms in which management is a crucial factor.

- (3) No distinctive pattern of economic characteristics of agriculture appears to have been associated with high total creditor equities in 1940. This probably is due in part to the heterogeneous nature of agricultural credit. But it is clear that the credit found where operator equities are high differs both as to kind and source from that where landlord equities are high.
- (4) Real estate credit appears to have been high in relation to total real estate value where total asset requirements were above average but asset and product characteristics were such that landlord investment would not be encouraged. Real estate credit, by the very nature of credit, can flow in where security may not be so satisfactory for direct investment. (Excess collateral can be taken as security.) It is possible also that real estate debt tends to be high also where non-real-estate assets which take on more of the characteristics of permanent working capital assets bulk large—dairy herds, for example.
- (5) When total creditor equities are related to total landlord equities, it is found that the creditor-landlord ratios were high in somewhat the same kind of agriculture as that in which operator equities were high. Neither private creditors nor landlords are strongly attracted to such agriculture, but some credit appears to flow in even where landlord investment is negligible. On the other hand, the creditor-landlord ratio was low where the willingness of landlords to supply a large part of the necessary outside capital for real estate ownership helped to restrict the demand for real estate credit.
- (6) Particular credit sources, which have been considered only briefly in this paper, appear to react differently to different kinds of agriculture. Real estate loans of insurance companies ran high in relation to total real estate value in much the same kinds of agriculture as that in which landlords were heavy investors. It seems probable that much the same kinds of investment decisions are involved in both cases. Banks as *non-*

real-estate lenders also were more important in such agriculture; but banks as *real estate* lenders were more significant in the same kind of agriculture as that in which the operator equities were high.

- (7) Land banks and Mortgage Corporation loans ran higher in relation to total real estate value in agriculture with economic characteristics that were less distinctive than those in which banks and insurance companies specialized. This may reflect in part their heavy refinancing operations in the thirties. The same may be said also with respect to the heterogeneous residual group of lenders which includes individuals. But the characteristics of the agriculture for the former were more like those in which insurance companies specialized and those for the latter more like those in which banks as real estate lenders specialized.

The further observations set forth below pertain more to the implications of the general approach adopted in this study for research in agricultural finance. The following appear worthy of special mention:

- (1) From a study of a large number of cross tabulations (only a few of which are presented here), the concept of an agricultural capital market seems to have sufficient validity to be used as a framework within which to conduct certain kinds of research in agricultural finance. Assets per farm and their composition afford clues to both the demand and the supply sides of this capital market. Data on equities in assets as of a given date provide indirect evidence on the supply side of this market.
- (2) The concept of an agricultural capital market as a framework for research in agricultural finance may provide also a useful cohesive force to bring research in agricultural credit and certain aspects of research in farm tenure more closely together so that the pooled results will give a better picture of the competing and complementary relationships among the several sources of capital to finance different kinds of agriculture. This concept also finds an important place for farm management research to help build up the capital use and capital demand side of the picture. Similarly, an important place is found for research in levels of rural living, use of income, etc. to help build up the picture of capital accumulation and of demand for consumption capital by rural people.

- (3) To find meaningful relationships between the economic characteristics of farms and how agriculture is financed, it is necessary to think in terms of entire farm firms as decision-making units as well as in terms of particular types of assets—real estate, livestock, equipment, etc. The concept of the farm firm (even though in this case it had to be applied to county data) requires, for example, that the entire bundle of assets that make up a farm be considered in relation to the entire group of financial arrangements through which control by the operator over these assets is achieved—ownership by the operator, renting from landlords, and borrowing money from various types of lenders.
- (4) Important for any interpretation of variations in capital structure of agriculture is a better understanding both of the economic characteristics of agriculture that give rise to demand for outside capital (capital in addition to that supplied by the operator) and of characteristics that attract (or repel) outside investment from different kinds of landlords and creditors. Asset and product throw-off data shed some light on these questions, although all too little is known about the factors that condition outside investment in agriculture. One of the largest gaps in this information relates to landlords as capital suppliers. Such information as we have must be adapted from data collected mainly through the Census to study farm tenure problems.
- (5) Finally, by approaching research in agricultural finance along lines such as have been followed here, it is possible to relate the results more easily to those obtained from research in business finance. It is possible, for example, that variations in the financial organization of different types of commercial farm businesses bear some relationships to variations in financial organization of different types of small business corporations. Landlord investment in farms, for example, may perform somewhat the same functions as certain kinds of equity financing in small business corporations (perhaps something like preferred stock). Farming in which the residential factor is more important may have something in common, from the standpoint of financing, with urban housing. Research in agricultural finance will be enriched if it is conducted on a basis that permits drawing from a broader field of financial experience than that of agriculture alone.

DISCUSSION

G. W. FORSTER

University of North Carolina

This paper deserves our commendation. It is concerned with a field of research which has long needed attention, and this discussant wishes to extend to Mr. Horton his encouragement to continue the work which he has so well begun.

This agreement with the author's objective, however, does not mean that I am in full accord with either the statement of these objectives, the method of procedure, or the inferences which he has drawn from the data. It is quite clear that the purpose of the paper has not been stated in such a manner as to be easily understood. This, however, is a defect which can be remedied by preparing a carefully worded statement as to the general nature of the problem of the effect of assets on farm financing. It would be helpful also, even at the cost of space, to present more information on the methods of procedure used in collecting and analyzing the data. Finally, there is the question of logic in the presentation of the data. I was, even after carefully reading, not always aware of the transition from one important segment of the discussion to another. Although the farms A, B and C compared are apparently made up of the same farms, yet these farms are not always tabulated on the basis of the same independent variable. There is, of course, no objection to this procedure, but the reader should be made conscious of this procedure.

The author tends to divert the reader's attention from the main objective by raising early in the discussion the "What should be" with the "What is and the why" aspects of the problem. It is usually quite sufficient if the discussion is confined to "What is and why." The discovery of "What and why" is the principal object of research; the second "What should be" is largely a matter of public policy.

I have another, and much more serious objection to the author's treatment of his subject. He does, as all scientists must, continually refer to the significance of the analysis. It is apparent, however, at least to this discussant, that the significance between the data, say in A County as compared to B and C Counties, is based upon the respective magnitudes of the average or mean of A as compared to B and C for any particular variable. But are such variations significant? I believe not, at least they may *not* be significant. It is only when the variation of the individual items within County A for any particular variable is compared with the variation of the same item between counties that the comparison takes on the aspects of significance. Hence, it would be advisable that the data be subject to the type of statistical analysis which will establish whether or not the comparison between counties is, in fact, significant.

CAPITAL RETURNS FROM SOIL-CONSERVATION PRACTICES*

S. V. CIRIACY-WANTRUP
University of California

IT MAY be assumed that the Program Committee, when assigning the topic for this discussion, was mainly interested in the difficulties inherent in evaluating capital returns from soil-conservation practices, and in the analytical and practical possibilities of dealing with such difficulties. These problems are indeed important and timely. Information about capital returns is needed for inducing farmers to make proper decisions about soil-conservation practices, and for helping governments to design adequate conservation policies, and to justify them before the public.

Economic Meaning of Soil-Conservation Practices

A few words may be said about what is meant by "practices" in the economics of soil conservation.¹ In determining the optimum state of conservation it is theoretically required to consider variations in one individual productive service, all other services being kept constant. It is difficult to fulfill this theoretical requirement in actuality; besides, individual productive services are not, by nature, conserving or depleting. In economic reality, theoretical solutions of the optimum state of conservation can only be approximated. One of the most useful approximations is to think in terms of alternative conservation practices.

A certain soil-conservation practice involves interrelated changes in many productive services in more than one instant; likewise, products may be changed in many instances. For example, the practice of "terracing" involves inputs of man-hours and machine-

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¹ Little need be said here about the economic meaning of conservation in general and of the optimum state of conservation. This meaning has been discussed in several previous articles (S. V. Ciriacy-Wantrup: "Private Enterprise and Conservation," this JOURNAL, Vol. XXIV, No. 1, February 1942. "Taxation and the Conservation of Resources," *Quarterly Journal of Economics*, Vol. LVIII, February 1944. "Resource Conservation and Economic Stability," *Quarterly Journal of Economics*, Vol. LX, May 1946). Conservation and depletion refer to *physical* changes in the time distribution of use rates of individual resources. Conservation does not connote efficiency, or depletion, waste. Both may be wasteful. Waste of resources can mean here only that the net-value stream from utilization is not maximized. Some of the problems encountered in maximization form the topic of the present discussion.

hours for construction, the expenditure of materials for preparing proper outlets, expenses for maintenance and repair over the years, variations in size and layout of fields, changes in methods of cultivating and harvesting, changes in yields, changes in risks, and possibly other changes. Under such conditions the present value of the total additional flow of costs caused by a certain practice is compared with the present value of the total additional flow of revenues.² By definition, the difference between these two present values (for short, present net revenues) is identical with the capital returns of the soil-conservation practice under consideration. Capital returns may be positive, negative, or zero. Although no one can determine the optimum state of conservation in this way, save by accident, the modest but practical goal of improving the existing state of conservation can be effectively pursued.

Distribution of Revenue and Cost Flows over Time

Revenue and cost flows usually differ in their time distribution.³ Revenues usually tend to be further removed toward the future than costs. For example, in dam construction for impounding or stabilizing water run-off, costs are concentrated in the first part of the economic life of the structures. This is because custom or law requires amortization within a certain period of time. Economic life may be much longer than this period, and may entail little expense for maintenance. Revenues, on the other hand, may be small at first but may increase considerably later. Usually it takes some time for vegetation and human use to become adjusted to the new water regime. Under such conditions it is misleading if evaluation of the revenue flow is limited by an arbitrary amortization period. This has happened, for example, in connection with the computation of so-called benefit/cost ratios in the Federal flood-control program and in other public-construction projects. The result is an incorrectly small benefit/cost ratio; this in turn may lead to "padding" of benefits through incorrect evaluation procedures. Some of these will be considered later. The remedy is to evaluate revenue and cost flows over the full economic life of the structures.

² Present value is the sum of a flow of positive or negative values extending over instants of time, each value occurring in any one instant (for short, current value) being discounted to the instant in which a planning decision is made.

³ The problem of measuring differences in time distribution has been discussed in: S. V. Ciriacy-Wantrup, "Taxation and the Conservation of Resources," *Quarterly Journal of Economics*, op. cit.

It may be well to note that the economic life is frequently not given by technological conditions. It is a variable which is determined in maximizing the capital returns of the conservation practice under consideration. For example, use of a dam for storing water can be extended indefinitely by expenditures for maintenance for reducing siltation and for removing silt. Such expenditures, however, may become uneconomical at a certain date as compared with other alternatives, such as building a new dam or taking care of silt further down stream (that is, using the old structure merely as a check dam). Sometimes, however, a maximum economic life is given and is economically relevant in planning.⁴ That would be true with a tenant who plans to move to another farm when his lease expires and who does not receive compensation for the unexpired life of a conservation practice. For him, the optimum economic life of a conservation practice could not be longer than the duration of his lease.

Allocation and Incidence of Revenue and Cost Flows

The last example leads to another important problem in evaluating capital returns from soil-conservation practices. It may be termed the problem of allocation. Under a given system of values (to be discussed presently) it may be regarded as axiomatic for social accounting that all revenues and costs must be allocated to the soil-conservation practice which gives rise to them, regardless of incidence among members of a social group.⁵ It is well to differentiate clearly between such an allocation of revenues and costs to functionally related soil-conservation practices as a problem of proper social accounting, and allocation to persons (incidence) as a problem of income distribution.

Revenues and costs regardless of incidence will be called here social revenues and costs. They are partly private and partly public. The incidence of private revenues and costs is partly on the planning agent responsible for the soil-conservation practice; this portion may be called entrepreneurial revenues and costs. The incidence of a second portion of private revenues and costs is on individuals who are connected in non-entrepreneurial capacity with the enterprise under discussion—for example, as landlords,

⁴ Economically relevant means that the given maximum life is smaller than the optimum economic life.

⁵ For example, the Federal Flood Control Act of June 22, 1936 (Public No. 738, 74th Congress) employs the phrase "to whomsoever they may accrue."

creditors, or laborers.⁶ The incidence of a third portion of private revenues and costs is on individuals under conditions where inter-enterprise connections exist; such connections may occur in soil conservation through the movement of water and debris downhill, of fire and gullies uphill, and through spreading of insects and pests. The incidence of public revenues and costs may be on public property—for example roads and reservoirs. Or it may be so diffused through the body politic that it cannot be ascertained individually—for example, if effects on economic stability, social security, and national defense are involved. The former may be called fiscal and the latter collective revenues and costs.

The importance of incidence of revenue and cost flows for private evaluation of capital returns from soil-conservation practices is great. Such returns may be quite different from the standpoints of the farm operator, his landlord, and his creditor. Similar differences between returns occur if there are such inter-enterprise connections as were just mentioned. The results are differences in the degree and kind of soil-conservation practices which private individuals can afford on one hand, and which are socially desirable on the other. This situation is one of the major reasons for public conservation policy.

In public evaluation, all portions of social revenues and costs from soil-conservation practices are of equal importance. But for the implementation and the technique of conservation policy, differentiation between different portions of social revenues and costs according to incidence is relevant. For example, in order to induce proper (in the sense of allocation as if for social accounting) consideration of entrepreneurial revenues and costs, education may be sufficient; or public assistance to overcome institutional imperfections in the adaptability of management, capital, labor, and land may be desirable. Proper consideration of private non-entrepreneurial revenues and costs can frequently be induced through more vigorous application and improvement of existing tenure and property laws. For proper consideration of public revenues and costs, subsidies or outright public ownership and

⁶ The interest of landlords and creditors in conservation is generally recognized. However, labor's stake in conservation is frequently not smaller. Labor is not perfectly mobile. Conservation may affect security of employment (stranded workers in forest areas not under sustained yield management are an example) or conditions of housing (where housing is temporary because of resource depletion as in some mining areas) or personal health and comfort (through dust storms, water pollution, and decay of scenic resources).

management are usually necessary. This is especially true of collective revenues and costs.

The public interest is sometimes defined in such a way as to exclude the entrepreneurial interest. The public interest is said not to be involved if entrepreneurial revenues and costs form a substantial part of social revenues and costs. This is true for many soil-conservation practices on private land. According to this view, such soil-conservation practices should not be subsidized. One may ask, when is the public interest involved? If one, ten, or twenty per cent of social revenues or costs are non-entrepreneurial? If one, ten, or twenty people are involved in addition to the planning agent? Highly arbitrary procedures must be adopted to get out of this difficulty. The W.P.A., for example, adopted a general administrative rule to the effect that at least twenty people should share in the benefits of a public project before it could be approved.

The solution of this difficulty has already been implied. Under our assumption with respect to a given system of values, the public interest is equally involved in all portions of social revenues and costs. However, the techniques of safeguarding the public interest may vary with respect to different portions and, within portions, with respect to causes of improper allocation. The mere fact that social revenues and costs are *also* largely entrepreneurial, does not rule out a public interest in soil-conservation practices on private land. On the other hand, subsidies may not be at all socially desirable even if a substantial part of social revenues and costs are non-entrepreneurial.

If public subsidies for soil-conservation practices are to be given on private land in cases where most revenues and costs are entrepreneurial, the following two criteria may be applied: First, we must ask, are subsidies the most economical tool for improving the state of conservation (considering, of course, costs of administration)? Or are alternative tools—for example, in the fields of education, taxation, and regulation—more economical? Second, assuming that subsidies are the most economical tool, are the resulting social net revenues greater than if the same amount of public money was spent in alternative fields? The economist is not absolved from thinking about these criteria by the fact that rules concerning them are sometimes established by precedent or law.

In the economics of conservation, values are often classified as onsite and offsite, as direct and indirect, as temporary and perma-

ment, and as objective and subjective. These and other value classes are constructed in order to prescribe priorities in evaluation when computing benefit/cost ratios from public projects. The classes themselves are not clearly defined. Furthermore, in the criteria of classification, the problem of incidence is mixed up with the problem of comprehensiveness of revenue and cost flows—that is, with the existence of extra-market (often called “intangible”) values. Let us turn now to this latter problem.

Comprehensiveness of Revenue and Cost Flows

Thus far we have assumed that values or value schedules for all units of components (individual services and products occurring in each instant) of revenue and cost flows and for the time discount rate are readily available. It is common knowledge that this assumption is frequently not justified in a value system based mainly on market prices. In other words, effects of a given soil-conservation practice may be recognized as economically relevant from a private or public viewpoint, but expression in terms of money value is difficult. This problem is analytically and practically different from that of allocation. There are, however, important interrelations between the two problems: It is more difficult to appropriate revenues or to shift costs if market values are readily available, than if individuals affected and the courts encounter difficulties in evaluation. Furthermore, in this and other occidental countries, social institutions regulating the allocation of revenues and costs between persons have developed with and around an individualistic market economy. Hence, they are not well adapted to a consideration of extra-market values—especially if the incidence of the latter is collective.

Only in public policy does comprehensiveness of revenue and cost flows create difficulties in evaluating capital returns from soil-conservation practices. It is important also in private economics; but no difficulties in evaluation arise. Individual planning agents are able to compare subjectively at the margin, utilities and disutilities connected with extra-market as well as market goods. Subjective evaluation of extra-market revenue and cost flows and, under certain conditions,⁷ of individual time-discount rates, are significant for public policy in understanding and influencing a

⁷ With respect to these conditions see S. V. Ciriacy-Wantrup, “Private Enterprise and Conservation.” *op. cit.*

prevailing state of conservation. But for objective evaluation of capital returns such subjective values are neither accessible nor relevant.⁸ Procedures relevant for objective evaluation of extra-market goods in public policy may be called administrative evaluation.⁹

One may differentiate two levels of administrative evaluation on the basis of the quantitative refinement which is attempted. At the first level, it is attempted to obtain money expressions for units or for aggregates of extra-market goods. In computing capital returns from soil-conservation practices, the results may be treated in the same way as market values. At the second level, without attempting a quantitative monetary expression, a certain flow of extra-market revenues is ranked higher than possible cost flows. In this case computation of capital returns from soil-conservation practices is meaningless. The economic issue is selecting those soil-conservation practices which yield the revenue flow with the least possible costs.

The second level of administrative evaluation is most common, if a minimum goal or standard is significant for public policy. Such standards are used, for example, in decisions concerning the amount of internal security, public health, and public safety (against fire and accidents) that is supplied. These standards may vary over time. Minimum standards of soil conservation appear also socially justified and practically feasible. Consideration of such standards is interesting and important, but it does not fit into a discussion of capital returns.

On the first—the quantitative—level, administrative evaluation can often use market values as starting points and bench marks. Courts, public utility commissions, and the like, operate frequently

⁸ One could speak for each individual of "subjective capital returns" from soil-conservation practices. However, such a terminology would be confusing and unrealistic. Through observation and interrogation it can be established that planning agents take account of their preferences with respect to extra-market goods, and that they arrive at definite results with respect to the desirability of alternative soil-conservation practices. However, no useful purpose is served by terming these results "capital returns." In public policy, on the other hand, it is necessary to obtain some objective yardstick for comparing extra-market revenues and costs.

⁹ The term collective evaluation, which occurs in the same connection (H. D. Dickinson, *Economics of Socialism*. Oxford University Press, Oxford, 1939, 262 p.) is not employed here because market evaluation is in a sense also collective, and because the same term used above in conjunction with revenues and costs might lead to confusion. The term administrative price, in the sense of a price resulting from administrative evaluation, has no relation to the term administered price, which has been used to describe the rigidity of prices under impure competition.

on this basis. In soil conservation, many extra-market revenues and costs can be evaluated in this way. For example, reduction of the siltation of reservoirs, of the pollution of streams, and of the impairment of scenic and aesthetic resources can be evaluated to a large extent by using market values in auxiliary calculations. The particular kind of auxiliary calculation that is employed varies greatly with different problems. Discussion of the many kinds that have been used would lead us too far afield here.

Instead of using market values in auxiliary calculations, market criteria—namely, equality of supply and demand—may be used for administrative evaluation on the first level. Students of socialist economics have given considerable attention to evaluation through trial and error. This type of administrative evaluation is well-suited for individual but not for collective extra-market goods. Individual extra-market goods can be consumed individually and in small portions. Examples are enjoyment of public parks and sport fields.

The same type of administrative evaluation may be used for individual goods that are, at present, evaluated in the market but under market forms which do not lead to equilibrium (such as oligopoly and bilateral monopoly) or under market forms which, although leading to equilibrium, are socially undesirable (such as unilateral monopoly and monopolistic competition). This point deserves mentioning here because the latter condition applies sometimes to the market for capital funds and to the determination of interest rates. There is no reason why administrative evaluation on the first level could not be applied to interest rates. Here also, existing market rates may be used as bench marks; or else equilibrium criteria—for example, stable prices or full employment—may be chosen.

Evaluation of Collective Extra-Market Goods

There remains usually a residual item in types of administrative evaluation which lean on market values and market criteria. This value residual consists of those revenue and cost flows the incidence of which is collective. Possibilities of evaluating collective extra-market goods can only be sketched here. The essential problem is to obtain a demand schedule, that is, a marginal social revenue schedule. A supply schedule, that is, a marginal social cost schedule, can usually be computed from market values; if not, the principles of obtaining supply schedules are the same as for demand

schedules. How then can demand schedules for collective extra-market goods be obtained?

Individuals of a sample or of a social group as a whole may be asked how much money they are willing to pay for successive additional quantities of a collective extra-market good. The choices offered relate to quantities consumed by all members of a social group. If the group interrogated is a sample, and only one sample is used, the modal schedule of the sample is obtained, and each point on this schedule is then multiplied by the number of individuals in the whole social group being investigated.¹⁰ If every individual of the whole social group is interrogated, all individual values (not quantities) are added.¹¹ The results correspond to a market-demand schedule. For purposes of public policy this schedule may be regarded as a marginal social-revenue schedule. In combination with a corresponding cost schedule the socially desirable supply of the collective extra-market good can be determined.

Several possible objections to this evaluation procedure may be considered:

First, one may object that quantities of collective extra-market goods are characterized by lumpiness, and that marginal schedules, therefore, cannot be obtained. The problem of lumpiness is in no way peculiar to collective extra-market goods. It was already suggested that in practical approximations to the theoretical optimum, total additional rather than marginal values and quantities are used. It cannot be denied, on the other hand, that defining quantities of collective extra-market goods is difficult—regardless of their lumpiness. If no suitable physical quantities can be found, costs may serve; for example, one may measure additional conservation in terms of congressional appropriations for this purpose. In this case it must be assumed that decisions with respect to priorities in the conservation effort are left to the proper administrative authorities. Still, the meaning of such appropriations in terms of physical quantities must be explained to the voters in order to enable them to make meaningful choices.

Second, one may object that expectations of the incidence of

¹⁰ Selection of a sample or samples and of a modal schedule within each sample raises a number of interesting statistical problems which cannot be discussed here.

¹¹ In the case of individual (in contrast to collective) extra-market goods the quantity scale of individual demand schedules relates to individual units of the good. In order to obtain the total demand schedule (marginal social revenue schedule) quantities are added. In the case discussed in the text, values are added.

costs in the form of taxes will bias the responses to interrogation. Through proper education and proper design of questionnaires or interviews it would seem possible to keep this potential bias small. Guarding against such a bias is a necessity common to all census questionnaires which bear on income.

Third, one may object that marginal social-revenue schedules obtained in the way suggested cannot be used, since other extra-market goods are not considered, and since marginal utility of money is not likely to remain constant. These objections apply also to the use of demand schedules in analyzing the market. Strictly speaking, of course, *all* market and extra-market goods are inter-related because of complementarity or competitiveness in use or production, and because of limited money income. Theoretically one can obtain, through interrogation, marginal social-revenue functions for any number of variables; changes in marginal utility of money can also be measured and accounted for. In economic reality, public policy must usually be content to deal with one extra-market good at a time, and to assume that changes in the marginal utility of money are of the second order of smalls.

Finally, the proposed method of evaluating marginal social-revenue schedules of collective extra-market goods may be rejected as too academic. It is true, of course, that the supply of collective extra-market goods is frequently not determined by monetary evaluation, but by the command of an autocrat, the desires of a powerful minority, or by other institutional and political factors. This does not mean, however, that in a democracy, evaluation might not aid in helping the government to make decisions. It may be noted that the procedure outlined can be used to aid on both levels of administrative evaluation. Interrogation and voting can be used for quantitative determination as well as for ranking of values. Considerable progress has been made recently in designing and evaluating group interrogations by questionnaire and interview. Economists, so far, have made little use of this progress in the field of individual and social psychology. Welfare economics could be put on a more realistic foundation if a closer cooperation between economics and certain young branches of applied psychology could be established.

*An Incorrect Procedure of Taking Extra-Market
Values in Account*

Sometimes a procedure is used in administrative evaluation which is also based on interrogation of individuals but which is

misleading. Such use has occurred, for example, in the literature on socially permissible expenditures of public funds for flood control. Individuals are asked, not how much money they would be willing to pay for successive additional quantities of a collective extra-market good (these quantities, as we know, relate to the social group as a whole), but rather, to report so-called subjective values of individual benefits, for example, of protection against flood damage to a particular enterprise. These amounts are then added. The result is a great but fictitious increase of benefits from public works. Aggregates of subjective values do not constitute a demand schedule for a collective good. This procedure misses entirely the meaning of evaluation and its role in social accounting. The more appropriate procedures which were suggested above may be discredited because of superficial similarities.

Weighting of Individual Preferences

A system of objective values implies that individual preferences are given a certain weight in influencing values. If monetary values are considered, as in the preceding discussion, the weighting is accomplished by the distribution of money income. In administrative evaluation the influence of individuals upon values may also be weighted by their political rights.

The normative aspects of social weighting cannot be approached with the tools of economics. The social significance of individuals and of their preferences depends on the whole culture of which economics is only a part. In economics, however, a particular system of weighting may be selected for study. Likewise, for purposes of public policy a certain system of weighting may be postulated as the "best" on philosophical, ethical, or other *a priori* grounds. Although conservation policy is not concerned with a particular system of weighting, some consequences that result from selecting a certain system are relevant here.

Let us assume, for example, that weights based on equality of economic opportunity and on equality of political rights are selected or postulated.¹² This type of equality is the professed ideal of contemporary democratic societies. This is also the postulate suggested by the philosophic attitude known as positivism. If any metaphysical absolutism of values and of truth is rejected, as in positivism, there is no basis for differentiating between the social

¹² It scarcely needs to be mentioned that equality of economic opportunity does not necessarily mean equality of money income. Neither does equality of political rights mean equal rights of voting for all. Even the most liberal democracies exclude certain age classes from voting.

significance of individuals. In terms of this assumption, then, any deviation from economic and political equality in the above sense would result in distortions of the value system and, therefore, of capital returns from soil-conservation practices. In other words, even if revenue and cost flows were comprehensive—which they are not, as we know—the validity of capital returns as a guiding principle for conservation policy would still be a restricted one. It may even be argued that it should be an objective of conservation policy to compensate for the effects of the distortions of capital returns upon the state of conservation. What these effects are and, consequently, what compensating action is required does not belong in this discussion. It is merely mentioned to indicate a possibility of bias if conservation policy is based on capital returns.

Problems in Obtaining Basic Data

Thus far, we have considered the difficulties in evaluating capital returns from soil-conservation practices. Let us now focus on some problems encountered in obtaining basic data which might be used in appraising capital returns.

In the technology of soil conservation, a wealth of experimental data has accumulated concerning the physical inputs and outputs of soil-conservation practices under different conditions of climate, slope, soil, and vegetation. The approach used in these experiments is the same as in our present discussion, namely, in terms of individual soil-conservation practices. Experiments have not been confined to the laboratory and test plots. They have comprised whole fields and farms. Although some of them have not been well designed and controlled in a scientific sense, a sufficient part of them stand up well under critical scrutiny. Most experiments were undertaken by technologists of the agricultural experiment stations and the Soil Conservation Service.

One might expect that this valuable material would have been used as the basis for an economic appraisal of soil-conservation practices. Both the economist and the technologist would have profited from cooperating in such an appraisal. However, with a few exceptions, economists have chosen a different approach; this is true especially for the Economic Research Division of the Soil Conservation Service.

The economists have attempted to appraise capital returns from soil conservation by comparing net revenues of whole farms which

were completely reorganized for purposes of conservation, with the net revenues of farms which were not so reorganized. Reorganization is referred to as a "complete conservation plan," and comprises usually a great number of changes in individual practices. Some of these changes may result in conservation, others may not. Little attention is given to the number and the character—whether conserving, depleting, or neutral—of individual practices.

Three modifications of this approach are in use. First, net revenues are compared on the same farm before and after reorganization. Second, net revenues of farms reorganized are compared with those of different farms without reorganization. Third, net revenues are derived from farm budgets in which the effects of reorganization are taken into account hypothetically. Accordingly, it has become customary to differentiate between conservation farms on one side, and non-conservation farms on the other. Sometimes a complicated system of scoring is used to put farms into these two classes and to differentiate between degrees of conservation. What is the analytical and practical significance of this approach?

It is sound farm-management doctrine that all farm operations are interrelated. The main reason is the importance of joint costs in agriculture; this problem has been discussed in detail elsewhere.¹³ It follows from this doctrine that every change in practices must be traced carefully in its effects through the whole farm. It does not follow, however, that more than one change of practices should be considered at the same time. On the contrary, every effort should be made to keep other practices as far as possible constant in tracing the effects of a change in one practice. This is especially true if a change in one practice alone involves changes in many productive services and leads to rather complex changes of revenue and cost flows. It was emphasized above that such complexities usually arise in the case of soil-conservation practices. The approach under discussion multiplies the difficulties of tracing the effects of soil-conservation practices—difficulties which in any event are appreciable. In addition, the approach may have rather misleading results. This happens if conservation practices change simultaneously with practices which are neutral with respect to conservation—or even depleting. Under such conditions, the profitability of a "complete conservation plan" may be due to other than conservation prac-

¹³ S. V. Ciriacy-Wantrup, "Economics of Joint Costs in Agriculture." This JOURNAL, Vol. 23, No. 4, November 1941, pp. 771-818.

tices. Conversely, profitable conservation practices may be discarded because they are appraised in association with other unprofitable ones.

The foregoing disregard of the "other things being equal" requirement is more objectionable than some other difficulties of the approach under discussion. Different periods of time, different farms, different managers, different physical and economic conditions, personal judgment of the investigator in scoring conservation and in constructing budgets are involved in the comparisons between conservation farms and non-conservation farms. In practice, changes of variables connected with these latter factors cannot be avoided and must be, as far as possible, taken into account and corrected for. On the other hand, deliberate simultaneous changes in more than one practice introduce unnecessary complications and dangerous bias.

At best, the effects of a "complete conservation plan" upon net revenues from conservation farms as compared with those from non-conservation farms proves that improvements of farm organization are profitable. This, of course, cannot be denied. But of what analytical and practical use is such a result? Does it tell a farmer which soil-conservation practice out of a number of alternatives, would be profitable for his particular farm? Does it tell him how intensively he should use a certain soil-conservation practice? Does it give him information about profitable modifications of a certain practice under different conditions of climate, slope, soil, and vegetation? Are policy-makers provided with a basis for appraising the flow of social revenues and costs from soil conservation? Do operators, landlords, and creditors become aware of how different soil-conservation practices affect their different interests in a particular farm? I believe that all these questions must be answered in the negative.

Is Soil Conservation Identical with Good Farm Management?

Those who use an appraisal approach in which soil conservation is identified with improvements of farm organization believe, no doubt, that they act in the interest of agricultural education. Still, in the long-run such an identification appears unfortunate because it will discredit conservation. It is possibly true that under most conditions some soil-conservation practices are good farm management. But it is equally true that under most conditions other soil-

conservation practices are bad farm management. Farmers are good observers and will draw their own conclusions regardless of educational efforts.

Since its beginning in the last quarter of the nineteenth century, conservation frequently has been identified with ideas and objectives not necessarily in harmony with it. At one time it was "breaking of monopoly power over resources," at another time it was "eliminating wastes of competition in resource utilization." Before the last war certain crops were stigmatized as soil depleting, and penalties (as deductions from AAA-benefit payments) imposed for their cultivation. Until 1941 corn grown for silage, sugar beets, grain sorghums, peanuts, potatoes, truck and vegetable crops, field beans, peas, soybeans harvested for seed, flax and summer fallow, among others, were officially classified as soil depleting.¹⁴ Some of these crops are valuable for soil conservation under certain conditions because they may serve as a basis for the livestock economy and encourage diversification, or because they may be helpful in eradicating weeds through row cultivation and shading effects, or because they may increase water absorption through their need for deep plowing, or because they can be fertilized heavily without danger of lodging. The conclusion seems warranted that other objectives than conservation—for example, maintenance of parity prices—were responsible for the identification of conservation with a reduction in the acreage of these crops.¹⁵ Could it be that some objective not necessarily in the interest of conservation is behind the recent identification of conservation and good farm management?

What is the farmer to think of these changing identifications of conservation? Some of the best farmers have become rather cynical about the official use of the word conservation. More and more they have learned to regard conservation as a different term for a general subsidy to agriculture, or merely as a device to obtain something for nothing from the government. This attitude is quite understandable if one looks at the official terminology in the past. Will this attitude change if farmers are now told that soil conservation is merely good farm management?

¹⁴ See U. S. Agricultural Adjustment Administration: 1941 Agricultural Conservation Program Bulletin. Washington, Govt. Print. Off., 1941, pp. 33-35 ACP—1941.

¹⁵ After Pearl Harbor, little was said officially about soil-depleting crops, and many of these same crops were subsidized.

Education, as we understand it, means broadening the basis of independent judgment of those who are to be educated. Measured by this yardstick, the economic work of the Soil Conservation Service has not been on the same level as its work in the technology of soil conservation and its application through Soil Conservation Districts. Those who educate are often influenced by what they teach. In this way research is affected too. Economic research sponsored by the Soil Conservation Service has been deflected from a painstaking economic interpretation and analysis of available technological data, and has been directed into an attempt to prove that soil conservation *per se* is profitable to farmers. This criticism must not be misunderstood: It should not be concluded that economic research in conservation might be curtailed. On the contrary, we believe that at the present time greater investment in economic research is the paramount need in the field of conservation.

DISCUSSION*

AARON G. NELSON

Farm Credit Administration of Omaha

Mr. Wantrup defines capital returns from soil conservation practices as the difference between the present value of the total additional flow of revenues and the total additional flow of costs. Capital returns are identical with present net revenue of a given conservation practice. The revenue and cost flows include both market and extra-market values, and the incidence of these may be private or public. Social revenues and costs are defined to include both private and public revenues and costs. It is pointed out that in evaluating capital returns the full economic life of practices should be used rather than an arbitrary amortization period. The economic life, when not limited by technological conditions, "is a variable which is determined in maximizing the capital returns" (or present net revenue) of the conservation practice. The discount rate thus is an important factor in determining economic life.

The section dealing with allocation and incidence of revenue or cost flows points out that while social revenues and costs are also largely entrepreneurial, the public continues to have an interest in soil-conservation practices on private land. The first part of my discussion deals with this point.

The primary reasons for public interest in soil-conservation practices on private land arise because (1) soil resources have a greater economic life for the public than for the private individual, and (2) there may be a desire or a necessity of maximizing efficiency in agricultural production of the

* A discussion presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947.

country. A reason frequently given for governmental agricultural conservation programs is that the nation must make plans for perpetuity while the individual farmer makes plans only for the period which he plans to operate the farm. Both the government and the individual, theoretically, would make plans for a given farm which would maximize present net revenue, considering both market and extra-market values. Public extra-market values, including those that are collective, usually would be much greater than private extra-market values, and would be an important factor contributing to a greater economic life for the public than for the individual farmer. Over the past decade farms in the U. S. have changed hands on the average about every 20 years. Where an entrepreneur anticipates controlling a farm for a long period of years, maximization of capital returns (present net revenue) generally would require undertaking a conservation program including permanent structures or alterations in the farm. Where such a program is adopted, private capital returns probably would approach social capital returns from the practices, any difference being largely due to difference in the discount rate. However, the economic horizon of the entrepreneur may be limited due to uncertainty, or lack of knowledge or tenure conditions; and the financial position of the entrepreneur may preclude undertaking certain conservation practices, particularly in the early stage of entrepreneurship. As the time period for which plans are made is reduced conservation practices involving permanent structures or alterations in farm organization tend to be eliminated by the entrepreneur and the gap is widened between private and social capital returns. Various methods, such as education, subsidies, and regulation can be utilized to induce adoption of conservation practices and narrow the gap. Selection of measures, however, should be based upon the two criteria outlined by Mr. Wantrup, namely, (1) determination of which measure is most economical, and (2) equalization of social net revenues from alternative expenditures of public money.

The second reason given above for public interest in soil conservation on private land, namely, to facilitate maximizing efficiency of agricultural production of the country, has been of much less importance in the U. S. than in some other countries. It is generally recognized that many conservation practices serve to increase current production as well as to extend the productive life of the factor of production. Terracing, for example, increases current production in most instances and also serves to reduce erosion, thus preserving the land for continued production. For over 50 years England has required by statute compensation of tenants for unexhausted improvements and landlords for damage due to negligence on the part of the tenant. Compensation of tenants for unexhausted improvements and landlords for damage due to negligence by the tenant serves to extend the economic horizon, and thus facilitate the adoption of durable conservation practices, increased production, and maximization of capital returns.

When a country has a shortage of agricultural products, public interest in production on private land increases. Even where actual shortages do not prevail it may be in the public interest to foster conservation practices

on private land if by so doing agricultural production is made more efficient, and product prices therefore are reduced. Both situations give rise to additional extra-market values which are relevant in maximization of capital returns.

The second point in my discussion concerns analysis of results of given conservation practices. Considered from the point of view of practicality, Mr. Wantrup's criticism of methods of economic analysis employed to indicate results of soil conservation practices is only partly justified. Discussion of this point should not be construed as justification of the course economists have followed, but it may be beneficial to point out some of the practical difficulties involved.

It is agreed that in order to ascertain the results of a given practice the "other things being equal" requirement, as set out in the paper, must be respected. It is also generally recognized that farm enterprises, operations and practices are intricately interrelated. Moreover, as is pointed out in the paper, economists and technologists would have profited from cooperating in a rigorous economic appraisal of soil conservation practices. But the development of the "complete conservation plan" is based to a considerable extent upon the type of analysis Mr. Wantrup sets up as essential.

The "complete conservation plan," worked out by the soil conservation service in cooperation with the farmer, is based upon experimental data, modified according to conditions on the particular farm under consideration. Experimental data are obtained from the soil conservation research stations, of which there are about 33 in the United States, and from other sources such as experiment stations. The research stations, located in the various type of farming areas, are conducted to provide information on the results of individual practices in accordance with the "other things being equal" requirement. These data, coupled with other applicable experimental data, form the backbone of the "complete conservation plan."

It is true that all too little formal economic analysis has been made of the quantitative data obtained at the research stations, and if such analysis were made, personnel concerned with making the "complete conservation plan" for individual farms might be able to give economic considerations more adequate attention.

However, economic analysis based upon research station quantitative data would have shortcomings in application to farm conditions. On the revenue side research station data probably would be sufficiently complete so economic analysis would encounter relatively little difficulty, provided market values were applied directly to additional products produced. If an attempt was made to extend the analysis through livestock enterprises, considerable difficulty would be encountered, but by using auxiliary quantitative data a rough approximation of the additional revenue flow probably could be established. The cost side of the analysis would usually have but little quantitative basis in research station data, however. Quantitative cost data that are available at the stations for most practices would have little applicability to actual farm conditions, and, therefore, any estimate of cost flows would have to be based primarily upon auxiliary data. Thus, while revenue and cost flows for individual conservation practice probably could be developed by supplementing research station data,

they would be no more than a rough approximation to revenue and cost flows on actual farms and therefore would be of limited value.

The suggestion might be made to collect farm record data which would provide a basis for reliable economic analysis of capital returns from conservation practices. It is practically impossible and usually impractical under regular farming conditions to attempt identification of quantitative revenue and cost items with individual practices. Furthermore, even if complete and accurate quantitative data were available, most of our economic analytical techniques are not sufficiently precise to measure results of practices which intricately affect the whole farm business. Moreover, conservation practices frequently are characterized by lumpiness, and even though but one practice is adopted on a farm, in many cases it is practically impossible to satisfy the "all other things being equal" requirement. Thus it becomes evident that while merits of economic analysis based upon the complete conservation plan are limited, other approaches are beset by genuine obstacles. That does not mean, of course, that new and more refined research methods should not be developed. Economists, in particular, could be more aggressive in analysis of conservation practices, and, as is pointed out in the concluding sentences of the paper, greater investment in economic research is a prime requirement in the field of soil conservation.

The third and final point in my discussion concerns the relationship of soil conservation and good farm management. It is generally agreed that, as Mr. Wantrup points out, some soil conservation practices are good farm management while others are bad farm management. In comparison of the two terms much depends upon definitions used. Farm management, of course, generally is attributed a broader meaning than soil-conservation, since it embraces other considerations, such as livestock enterprises, as well as land management. Provided the time element used in maximization of returns for both is identical, good private land management and soil conservation would be about the same in many cases. The time element involved in soil conservation, however, frequently is longer than that involved in private land management, and in such cases end objectives are different.

It also should be noted that shifting emphasis in the meaning of conservation and in classification of crops relative to conservation, referred to in the paper, is generally applicable, not to activities of the Soil Conservation Service in connection with its research stations or its Districts, but to programs carried out by the Production and Marketing Administration and formerly by the Agricultural Adjustment Administration. Mr. Wantrup's point is well taken, that such shifting emphasis is not conducive to successful continuation of government induced conservation in American agriculture.

DISCUSSION

HORACE G. PORTER

Federal Reserve Bank of Richmond

At the very outset let me commend Dr. Wantrup for his very stimulating paper and the previous papers and articles he has contributed to our

Association and JOURNAL. In the brief time at my disposal I concentrate on only a few points.

I want first to call attention to one of the early statements in the paper. I think it deserves special emphasis as a background for thinking about various aspects of our topic—"Capital Returns from Soil-Conservation Practices." He said, and I quote: "Information about capital returns is needed for inducing farmers to make proper decisions about soil-conservation practices, and for helping governments to design adequate conservation policies and to justify them before the public."

In this you see that Dr. Wantrup recognizes two levels of interest. One is the individual farm level and the other is the group, or governmental, level. This distinction is quite significant, and I feel that the paper would be more effective if this distinction had been kept more in evidence. Most of my comments relate to the individual farm level.

At one point Dr. Wantrup discussed the period over which costs are incurred and revenues received and the benefit/cost ratio. He said: "The remedy is to evaluate revenue and cost flows over the full economic life of the structures." He then went on to recognize that this was not always feasible. It seems he might have added a specific acknowledgement that the effective economic life of a given structure, on a given farm, may be different to one interested party than to another.

To illustrate, let us assume there is a farm on which terraces are needed. If we further assume that the farm is owned and operated by a conscientious young man, there is reason to believe that he would attempt to think in terms of the full economic life of the structure as Dr. Wantrup uses the term. This might be 25 years or more.

Now let us make just one change in our assumption and suppose that the farmer, instead of being young, is old. In the case of the farm operated by the young man, a lender might feel free to think in terms of a full economic life of as many years as the farmer himself, despite the chance of a change in operators. However, in the case of the older operator there is the virtual certainty that the management will change and the lender often is unwilling to think in terms of a full economic life of the structure of as many years as in the other illustration. In this connection, the more general a given conservation practice is in an area, the less likely is a change in the management of the farm to alter the practice. In other words, the range within which the separate appraisals of the "full economic life of the structure" falls is more likely to be narrow where a given practice has become institutionalized than when it is being pioneered.

If the owner operator is to borrow to finance a conservation practice, or I would prefer to think in terms of the entire package of conservation practices that are deemed appropriate for his farm, he probably would insist on a repayment plan so that the debt would be serviced out of increases in revenues over what they otherwise would have been. He is equally interested in repaying the loan before the economic life of his composite conservation plan expires.

Lenders too often expect repayment before the processes being financed have fully developed. Nature, however, has never learned how to read the

due date on a note. Consequently, if the repayment schedule of a conservation loan fails to conform to the biological processes being financed, most farmers must seek a renewal, default, or use money from elsewhere in the farm business to meet his contractual obligation.

I, for one, do not consider that the soundest basis for either loaning or borrowing. Nor, as I have pointed out, is it sound for a lender merely to look at the maximum life of an individual conservation practice, or, for that matter of a composite conservation plan for a farm as it appears to the operator, and then to spread his repayment schedule over the full period and hope to goodness that nothing will nullify the effectiveness of the program.

From an area standpoint, the situation is different in at least one important respect. This arises out of the element of size. For example, in an area covering a group of counties, an entire state, or the nation, there is a large enough number of operating units so that statisticians can learn to estimate within practical limits the annual rate of deterioration on farms where deterioration is occurring.

At one point Dr. Wantrup asks a number of penetrating questions. He directs them especially at analyses based on the effects of a complete conservation plan upon net revenues of such farms. He raises such questions as—Does it tell a farmer which soil conservation practice out of a number of alternatives, would be profitable for his particular farm? Does it tell him how intensively he should use a certain soil conservation practice? He concludes his questions by stating the belief that they must all be answered in the negative. With that I would agree; and yet I would ask whether or not any research that already is in progress or might be undertaken could produce entirely adequate answers to these questions. It is one thing to use such questions as a limit against which one can note change. It is quite a different thing to think that research can supply entirely satisfactory affirmative answers to such questions when they apply to specific individual farms.

In the paper considerable point was made of the need to hold all but one thing constant at a time. Although I will grant the soundness of such a policy, I would point out that it is quite hard to justify studying some individual practices in complete isolation. While such a procedure often is satisfactory, there are times when I believe more could be learned from studying patterns than from studying individual practices. Let us again look at terracing for an example. Dr. Wantrup would have us consider terracing as one practice, the development of grass run-off areas as another, and contour plowing as a third practice. As a matter of fact it would seem that as much or more could be learned by studying these three practices as a pattern instead of studying each in isolation.

Toward the end of Dr. Wantrup's paper he expresses concern over the kind of bed fellows "conservation" keeps. For example, he refers to the identification of conservation with a reduction in the acreage of certain "surplus" crops. This is followed with the question: "Could it be that some objective not necessarily in the interest of conservation objectives is behind the recent identification of conservation and good farm management?"

"What is the farmer to think of these changing identifications of conservation? Quite a few good farmers have become rather cynical about conservation. More and more they have learned to regard conservation as a different term for an agricultural subsidy . . ."

While I have no intention of being unduly critical, I must admit that I fail to find what seems to me to be an adequate justification for such statements. From the standpoint that we are discussing *conservation*, need we concern ourselves with what use some action program, or programs, make of the word "conservation"? I am surprised at the statement that "quite a few good farmers have become rather cynical about conservation" because of such identifications. I would agree with him, if he were intending to say that quite a few good farmers wish that various government agencies would at least be consistent in their use of the term conservation, but I am unaware that any significant number are cynical about "conservation" as such.

In closing my part of the discussion let me second what Dr. Wantrup said about the need for more economic research in the field of soil conservation. While I wouldn't go quite as far as he and say that "economic research is the paramount need in the field of conservation," I would say that I believe it to be an important need. Working as I do with lending institutions and with professional agricultural workers and farmers, I am very much aware of the need for more *action* in the field of soil conservation. I would hazard a guess that much more action could be made to rest on our present knowledge and most of it would be well directed. However, it is undoubtedly true that more attention given to economic research should pay good dividends, both in the rate, with which soil conservation practices are being adopted, and in the effectiveness of such efforts.

Finally, let me say that I am sure I speak for all of us when I say I found Dr. Wantrup's paper both stimulating and helpful. While I have dwelt mainly on a few points on which I would appraise the situation a little differently, or at least more fully than did Dr. Wantrup, I passed over far more points on which I find that we are apparently in complete agreement.

THE ROLE OF THE FARM ORGANIZATION ECONOMIST IN THE FORMULATION OF FARM ORGANIZATION POLICY*

LOUIS F. HERRMANN

The National Cooperative Milk Producers Federation

POLICY formulation accounts for about 90 percent of whatever glamour there may be in a farm organization economists job but for only about 10 percent of his opportunities. Policy making also is a controversial aspect of farm organization activity. For these reasons, almost anyone besides a farm organization economist could probably handle this topic with better perspective. There are many government, college, and industry economists well enough acquainted with our problems to do the subject full justice. Nevertheless, it may be of interest to look at this question through the eyes of a practicing farm organization economist.

Why Farm Organizations Employ Economists

The staffs of farm organizations are established mainly to execute the policies of the organization. Agricultural economists are employed mainly because the skills developed through their training and experience render them particularly useful in carrying out the measures dictated by established policies. Farm organization leaders do ask for basic agricultural economic data for policy-making purposes, but the tonnage of data marshalled as a basis for action in fulfillment of established policies heavily outweighs the quantity of data going into pre-decision study. In my own position a substantial amount of activity also is in economics service to member associations, and this bears but little relation to the formulation of Federation policy.

So much for the duties that do *not* bear on policy making. Now for a look at the policy making process, where the organization economists stands in it, and what if anything should be done about increasing his importance.

About Farm Organization Policy

The policies of the farm organizations are the expressions of the majority view of the farmers and farm leaders who constitute

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their membership. The major issues have been dealt with for a generation or more by existing farm organizations, and the core of existing policy is not apt to be altered lightly. Farm organizations are motivated by many valuations apart from the general maximization of goods and services, and the economist's contribution to policy sometimes may be greatly modified. The channels, the mechanisms, through which policy evolves are often diffused throughout the organization, and the farm economist's contact with policy formulation may be slight, even up to late stages.

Sight should not be lost of the fact that farm organizations are democratic institutions. Control and the power to determine policies rests in the members. Too much independence of action with respect to policy making on the part of the employees of the organization smacks of usurpation of authority.

These considerations are the framework within which the farm organization economist plays his role in policy formulation.

It is difficult to set realistic limits to the functions entering into policy formulation in farm organizations. Surely the kind and amount of information supplied to leaders and members influence the results that follow from the more formal steps in policy formulation, but such influence is quite indirect. More tangible lines can be drawn running to the end result—policy—from certain activities of the legislative and executive bodies of the farm organizations.

The legislative decisions occur in the annual meetings and in intervening meetings of directors, executive committees, and specially authorized committees. A certain amount of staff work is done by the regular employees of the farm organizations in advance of such meetings in order to define the issues upon which new policy must be formulated or existing policy modified.

Then, policy statements enacted by the policy-making bodies are seldom so detailed that they may be applied directly to all problems which they are intended to cover. The result is that the regular employees of the organizations must exercise a degree of responsibility in interpreting formal policy statements.

The Economist's Contacts with the Policy-Making Process

The farm organization economist may enter into all stages of the process described above. In the first instance he can look ahead and see developing economic problems. He can appraise the adequacy of his organization's existing policies for guiding action with respect

to such problems. He can then recommend matters for inclusion in meeting agendas. Such recommendations may include topics for discussion, and suggestions for special committee work, advance studies, outside advice, and other recommendations.

The relative freedom of initiative of the economist to make such recommendations, and the level to which he may carry them varies from organization to organization. It depends upon the policy of the organization, the ability and experience of the economist, and the trust of the leadership in his studies and conclusions.

All the farm organizations from time to time request their economists to prepare policy studies for consideration by responsible organization bodies. The economist may prepare these studies independently, or he may serve as chairman of study groups. He generally reports his results to and discusses them with the policy-making body.

When policy decisions are being reached or reduced to formal statements the economist may be useful. His talents are called on in about this order: (1) ability to grasp the ideas of others and express them accurately in written language, (2) ability to analyze the economic implications of proposed policies, and (3) ability to analyze economic problems and devise appropriate policies for solving them. Wide variations occur in the extent to which the economist is asked or offered the opportunity to present his views on policy at this stage. Debating resolutions is primarily a policy function, and is outside the role of organization employees.

The organization economist's last contact with organization policy comes with its application to day-to-day problems. Interpretation of policy is not solely the function of administration. An administration which attempted to redirect organization policy under the guise of interpretation would soon lose the confidence of its directing heads. Furthermore, it is customary to confirm interpretations more or less regularly by referring them to executive committees, directors, or memberships. Within those limits, however, policy grows in the day-to-day administration.

The contribution to organization policy at this stage is apt to lie at the extensive margin, rather than at the intensive margin of organization activity. To illustrate, the intensive margin of the National Cooperative Milk Producers Federation legislative activity would be represented by bills on tariffs, oleomargarine, cooperatives and dairy product price supports, on which the Federation has

deeply rooted traditional policies. The extensive margin would lie among the two or three thousand bills introduced in each session of Congress, which someone must array in order of their relevance to Federation policy. The increasing complexity of this legislation tends to draw the Federation into new fields of activity. If the economist's analysis of a bill leads to new Federation action, then by so much has the economist influenced the living policy of the organization.

Economics and Policy

If farm organization staffs included no economists, there would still be economic decisions implicit in organization policies. There might be decisions based on very good economics reflecting the economic insight of organization leaders or borrowings from outside economists. On the other hand, these decisions might be based on assumptions that a formally trained economist might consider crude or false. However, without or with staff consultation on the economic content of policy, its economic content is frequently compromised with considerations of social, political (not including party politics) or group interest. The quotation "Man does not live by bread alone" serves other fields than theology.

Economic policy, presumed to deal with maximization of goods and services for mankind in general, may come in conflict with other group objectives. For example, you are familiar with frequent instances during the past fifteen years when proposed methods of raising or maintaining the economic status of agriculture ran head on into farm organization's concepts of the democratic values that should be protected.

Whether these conflicts between possible economic and noneconomic policies for farm organizations all are necessary or not is a question which ought to be inquired into. Possibly some of the existing economic doctrines can be adapted to fit the idiosyncrasies of existing farm organization policy. (Admittedly, this is no new idea. The principal question is whether the job will be done by economists or by someone else.) Possibly, a proper combination of genius and perspiration might produce new economic solutions tending to minimize conflicts.

Economists who are not employed directly by farm organizations can adhere to an ivory tower tradition, remaining as aloof as possible from the aberrations of the economic man and the evanescent necessities of political expediency. Let someone else worry about

the conflicts. Whether or not pure economics is the only sound long-time basis for farm organization policy, the ivory tower tradition has an indispensable place. However, that tradition is a luxury which the farm organization economist can indulge in only sparingly. The major part of the farm organization economist's job is to conduct, or assist in conducting a refitting process. The fulltime theorists perform a service by assembling their laws, axioms and propositions into tentative agricultural or national economic policies. They must expect, however, that the policy products of their assembly lines will undergo considerable refitting at the hands of farm organization members and leaders before they are trotted out to meet the assaults of assorted groups from the other side of the tracks.

The Economist's Contributions to Policy Now

Short of full time, high level policy synthesis, there still remains a great deal for the organization economist to contribute to policy. It is a contribution merely to assemble facts and make them available to policy makers who might otherwise do without them. It is a contribution to analyze facts and draw conclusions upon request. It is a privilege and a contribution to spar with alert farm organizations leaders over policy questions. One of the rewards of this work is the occasional opportunity of sharpening one's or another's thoughts in socratic dialogue.

All these help in shaping policy. Do they make the organization economist important in that role? Probably not more important than the University economist, who can more often catch the farm organization member and leader at home with his sleeves rolled up.

The pinnacle of the economist's effect on policy might come when he is given carte blanche to study a problem and recommend a solution. Such an assignment creates a problem for anyone possessing some knowledge of what might or might not be palatable to the leaders if the palatable answer is shortsighted or economically unsound. The best solution may not be acceptable. The organization economist then should be able to devise a compromise. If there can be professional ethics for economists, it calls for the economist in this instance to properly flag his proposed compromise. My own experience is that a straightforward report of what one feels to be right will cause no difficulty and may sometimes, surprisingly, be accepted. In that case, has the economist influenced the formulation of policy?

A few years ago, the Federation was struggling with its parity policy. I gave the data showing that as between present parity, the Pace bill and the Thomas bill, dairy product parities would be more favorable relative to feed prices by the latter. The Federation endorsed the Thomas parity proposal. For a long time the thought bothered me that I had not dwelt sufficiently on the defects of all three. The subsequent attempts to reconcile differences with the Farm Bureau may have led to a much better all-around understanding of the parity problem than might have come about if the sounder moving average base had been adopted by the Milk Producers Federation from the start. Perhaps it's just as well if farm organizations don't ask for very much policy as such from their economists.

How Economics Can Serve Policy Best—The Farm Organizations Job

How can farm organizations make the maximum use of economists in the formulation of policy? First, by making policy *study* a more important part of organization procedure. Make it a continuous procedure, with definite responsibilities on committees or other units. Second, by securing competent economists, with well-known "passion for anonymity" to service those committees *technically*. Finally, keep economics in its proper perspective by drawing on other experts for technical treatment of the other considerations to which economic considerations may in given instances be secondary.

How Economics Can Serve Policy Best—The Economist's Task

If economics is to get the consideration in farm organization policy that farm economists might like it to have, the farm organization economist must earn the confidence and respect of his employers. The economist's attitude should be that of a research worker, to consider every solution only a tentative solution. The economist should always be conscious of the background of training that facilitates and conditions his own solutions to economic problems, and he must expect that others will frequently appraise facts differently and will reach different conclusions.

These precepts might not guarantee fame or notoriety but I believe they are the basis for sound personal satisfaction in professional services rendered.

THE DEVIL CAN ALSO QUOTE STATISTICS*

RUSSELL SMITH
National Farmers Union

TO START with, let us agree that economic data are used principally as a justification rather than as a basis for legislation. The economist appearing before a committee of Congress is all too often in the position of a lawyer arguing for his client, and the data presented there or on the floor of the Senate or the House frequently bears a suspicious resemblance to the testimony of an alienist attempting to contribute to the freeing or convicting of a prisoner at the bar.

The illusion that a massive array of figures and their factual presentation can be managed without regard to the passions and the unpredictable motives of mankind is simply another facet of the larger illusion that economics exists apart from life in general.

This is not to say that statistics and their use are not important in the consideration and disposition of legislation. Rather, the point is that members of Congress do not make up their minds on the basis of cold logic. Issues are decided not by statistics but by votes, and back of that by a complicated interplay of the factors ordinarily summed up in the word "politics."

Economic data *are* important in the handling of legislation but they are important in far different fashion from that ordinarily conceived. The questions to be asked are not, What do the facts prove? or, What are the cold figures on this? but, Whose figures are they? and, For what purpose are they produced?

Occasionally, such data are of very great importance in floor debate. An outstanding recent example has been provided by Senator O'Mahoney of Wyoming, always one of the fastest men with a chart in the history of Congress. Senator O'Mahoney was not an original advocate of the bill that finally became the Employment Act of 1946. As always, he assured himself of his grounds before committing himself. Once he had decided to lend his support, however, the Senator threw himself into the campaign for enactment with customary shrewdness and vigor.

To this observer his floor performance the day before the bill was passed by the Senate was the most effective of all presentations

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947.

made during the debate. For this show—and that was what it was—the Senator of Wyoming set up on the wall of the Senate a chart stand and charts. Then equipped with pointer he proceeded to give his colleagues a lecture in economics that for clarity and simplification can stand as exemplary.

When he had finished, the debate also was ended. A bill that at one time had been controversial in the extreme passed the Senate without a record vote.

But such instances are relatively rare. Every Senator and every Representative of course fortifies himself with documents and statistics to bolster any major argument he may make on the floor, and not infrequently the walls of one chamber or another are adorned with graphs or line charts or symbolic presentations, these ordinarily for inspection merely.

The usual forum of the economist and his data in Congress is in committee hearings. There, too, the earlier observations hold good. Every series of Congressional hearings becomes at one stage or another a battleground of economic charges and countercharges. Some of the data, indeed, have become hoary with relative rapidity, as in the case of those figures invariably presented by one perennial witness to prove that prosperity in the United States requires nothing more than the assurance to the farm population of one-seventh of whatever national income is desirable.

It will be of considerable interest to agricultural economists to pursue the hearings of the House and Senate Committees on Agriculture this autumn and winter with a view to assessing the *uses*, to which data are put. I venture to predict that in these hearings on long-range agricultural policy the same figures will be used by varying witnesses to prove mutually contradictory points. Income figures will be adduced to show that the American farmer is better off than ever before and to prove that he is being victimized by other groups in society. Statistics of production will be paraded to prove, on the one hand, that the more prosperous one-third of farmers are the only farmers who ought to remain on the land, and, on the other, that the Nation faces early expiration unless the poorer two-thirds are authoritatively assisted with Federal funds and sanctions. Precisely the same data will be offered by the advocates of centralization of public agricultural programs and the proponents of stronger State programs and controls.

In short, I suspect that both Dr. Schultz and Congressman

Andresen will be forced to rely upon the same tabulations as to imports and exports, yet no one expects them to arrive at remotely similar conclusions either as to the past, the present, or the future, of American agriculture in the world complex.

In still another aspect of the National scene, economic data enter into the disposition of legislation. And very often their role here is of more far-reaching and immediate significance than in specific conflicts in Congress, whether on the floor or in committee. This is in the work of the established economic arms of the Executive branch of government and of those economists who act as advisers to principal officers of that branch.

The most striking recent example of the impact of data upon governmental action is, unfortunately a somewhat negative instance. I am thinking of the estimates made just about the time the war was drawing to its end that there would be 8 million or more unemployed in the United States by the spring of 1946.

Through the winter of 1945-46, the great debate over the Employment Act of 1946 was in progress on Capitol Hill. There is no question that this prediction had a great deal to do with the success of the supporters of the bill in the Senate. The figure was repeated on and off the floor, in the lobbies, over luncheon tables, until it became a sort of chant, with the vague effect of savage drums in the hills of Somerset Maugham or whatever writer of strange isles. There is no doubt, moreover, that it had somewhat the same ritualistic effect upon the considerably more civilized members of the Senate. In sum—they were scared to death, scared of what 8 million unemployed could mean and scared of the lack of preparedness to deal with such a condition.

But by the time the bill was through the Senate the chant of disaster was beginning to grow a little strained. As the House Committee in charge of the bill added procrastination upon procrastination, it became increasingly evident that there not going to be 8 million unemployed, or even 2 million unemployed, by spring. And as this awareness grew, the going for the bill became harder and harder. In the end it was only by dint of strenuous exertion upon the part of the Administration, and of a number of compromises in wording and substance, that the bill was enacted into law.

Now, the estimates upon which that prediction was made were of course carefully and arduously worked out by extremely able members of your professions. But to some of the lay members of the

government, their unreality became obvious long before it did to many economists. I remember, as an example, that Mr. Chester Bowles once told me that he had lopped 2 million unemployed off the figure that had been presented to him for use in a speech. He could not prove that the economists were wrong, but his common sense told him they *were* wrong. And, even with the 2 million deducted, it turned out he was only somewhat less wrong than his advisers.

Sometimes I suspect that it is the memory of this episode that prompts the President's Council of Economic Advisers to hedge about its reports with the near-divinity of safety that lies in multiplicity of statement, extension of analysis, and exclusion of the controversial. But who can blame the members of the Council if they prefer, from the example cited, to walk warily at this time?

In any case, the data compiled by economists in the Executive branch and issued for whatever purpose frequently may have an impact of major significance on legislation, and, indeed, these economists are well aware of the fact. All too often, those in charge of such work have bearing heavily upon their souls the knowledge that not only the legislative committees of Congress may be influenced by their report but the appropriations committees also. And this is a fact not the most conducive to objectivity.

Let it be said, however, that their fellows may well be proud of the extraordinary degree to which such agencies as the Bureau of Agricultural Economics, the Bureau of Labor Statistics, and others, through the years have declined to yield to the exigencies of political necessity, and by that obdurate insistence upon the right of free inquiry have built a tradition and an institution of governmental economic research perhaps unparalleled at any time elsewhere.

There is one final means of bringing economic data into play in relation to legislation, and that is in the resort to public opinion directly. I am thinking of such instances as that in the Hoover Administration when some scores of economists, including those most eminent in the profession, signed a joint denunciation of the Smoot-Hawley Tariff Act and predicted the disasters of economic war that followed.

The statement had a profound, though delayed, impact, and it was one of the important contributory factors in the enactment of the Reciprocal Trade Agreements Act. It is true, of course, that the agile brain of Mr. Charles Michelson and his adept use of the state-

ment for the partisan purposes of the time, contributed greatly to its practical usefulness. Mr. Michelson, you will recall, was then the publicity director of the Democratic National Committee, and, indeed, a good deal more than that. But the fact remains that by such an impressive appeal to public opinion economists did what they could—and it was a great deal—to the shaping of legislation that I think most of us agree was badly needed.

I fear that the general shading of this apparently heterodox and assuredly rambling paper is dark, but pessimism is not at all its intent.

After all none of us pretends to infallibility nor are we ignorant of the fact that the Devil can quote Scripture to his own ends and sometimes more patly than the righteous man. It seems to me, then, as I look back over what I have said, that there are two points to be made in conclusion.

One of these is that economic data, however honest and painstakingly compiled, vary widely as a basis for legislation. This is natural, since legislation is the product of conflicting human strivings made manifest through those imperfect instruments, ordinary men. The importance of data to legislation, however, varies also with their relevance to the immediacies of the moment, and it must be emphasized that those data that seem of no consequence at a given time may contribute materially over a span of years to the making of laws, which at bottom are simply society's organized response to needs. In this sense, therefore, economists may be said to be working as much under the eye of eternity as far the exigencies of the present and may well work secure in the assurance of pride and dignity of their profession.

The other is in a way the obverse of the same coin, and that is, that economists have a deep obligation to make sure that the objects of their research *are* relevant, that they are relevant to the life of the people. It is not the economist's province to predict the results of his work in advance, any more than its use after completion is chargeable to him. But it *is* very much his duty to give his attention to objects that are of significance. If he does that he may be sure that some day the work will bear in one way or another upon laws and living. More than that, he will know that he has worked not as an irresponsible who has gratified his taste for intellectual pastime but as a valuable member of a society to which he has added that something he is best equipped to contribute.

PROBLEMS OF EFFECTIVE PRESENTATION OF AGRICULTURAL ECONOMIC DATA TO THE MEMBERSHIP OF FARM ORGANIZATIONS*

L. C. HALVORSON

National Grange

TO BEGIN with I need to explain that the topic which I have agreed to discuss at this session is "Problems of Effective Presentation of Agricultural Economic Data to the Membership of Farm Organizations." However, when I accepted the invitation to present a paper at this session I indicated that I would want to touch also upon the broad aspects of the role of the farm organization economist.

From my contacts with the other farm organization economists, I am certain that our work and experiences vary a great deal and that our opinions and impressions also vary. For this reason there is not much risk of repetition, even if I should touch upon the same points as my colleagues from other farm organizations in discussing the general nature of my work.

I believe that the nature of my work may be of interest in two respects. First, it indicates the broad scope of the problems which confront a general farm organization. Secondly, it is good evidence of the need for a broad curriculum for students taking agricultural economics.

My work as the economist for the National Grange does not involve the presentation of any appreciable amount of data or information to our membership. Most of the material I present is presented to the officers of the National Grange, the officers of the State Granges and to committees of the National Grange. The latter group consists of the State Masters and their wives. In this paper I will discuss the problem of effective presentation faced in all aspects of my work.

The reason why my work does not involve the presentation of any great amount of data or information to the membership of farm organizations is that the Grange has an information division. For the most part, the rank and file members of a general farm organization want only a few facts presented in journalistic fashion.

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For this reason each of the major farm organizations employs information men. Putting economic information, and even economic reasoning, into such form that it will receive the attention of farm people is a profession in itself.

Through a subsidiary corporation the National Grange publishes weekly the *Washington Farm Reporter* and the *Farm Commodity Report*. The information man is, of course, the editor. I give no assistance whatever to the preparation of these reports. The information man for the Grange has had years of experience as chief of the farm news service for one of the largest press associations. Because he also writes columns for a number of farm magazines, and also for the Grange papers, he keeps more up to date on current economic data and developments than I.

However, my services are available to the information man in connection with some of his work such as the preparation of press releases. Sometimes historical data are needed or the calculation of index numbers may be desired. Occasionally I supply an idea or line of reasoning. Last Spring when the Executive Committees of three farm organizations met together, the economists were asked to prepare a statement on the price situation. We brought together the pertinent data and supplied the basic idea without much attempt to make the statement journalistic. Next the information men got together and reworked our statement into final release form.

The *National Grange Monthly* reaches many of our members. Occasionally I am asked to bring together information in table form for use in an editorial by the National Master. Usually the data called for are easily presented. However, I have some minor observations. To most farm people footnotes are more confusing than enlightening. Frequently it may be necessary to sacrifice accuracy for clarity. Data in tables should have all the zeros added right with the figure, if possible, and the column should not be captioned "in thousand," "in millions" and so on. Almost everyone can understand \$25,000,000,000 or even \$25 billion but for some reason \$25,000 million confuses many people.

The way to create interest in health statistics for example, is to compare the rural health situation with the urban health situation and show just how lacking the rural situation is. Comparisons of mortality rates and figures indicating preventable deaths stirs interest. Of course the use of short sentences of simple construction

makes for effective presentation. Subheadings and pictures scattered throughout articles are very helpful.

We reach our Grange members sometimes through material prepared for the lecturer's program. Question and answer type of material seems to be most effective. Somehow it seems that if a question can be raised in a person's mind he will look for the answer, while the answer by itself might not make any kind of impression.

Government agencies at times are anxious to reach farm people with a message. Often we cooperate by asking them to prepare a tentative draft for a lecturer's program. Before the material is duplicated I add my suggestions. The Farm Credit Administration prepared good material on land inflation which was sent to our 8000 Grange lecturers. At times the material submitted to us has had to be discarded. Many people do not know what is meant by such terms as deficit spending, fiscal policy, compensatory fiscal policy, progressive and regressive taxation and so on. While most people know what Blue Cross is, some have never heard of it. In most instances it is best to proceed on the assumption that people know nothing whatsoever about your subject. Even if they have some prior knowledge a little review will serve a good purpose.

The main task in preparing material for a lecturer's program is to choose a few important points and discuss them in a direct interesting manner. Data on price behavior and foreclosures may impress an economist but most people would be more impressed by a little story about the troubles of a farm family in Iowa who bought a farm at the peak of the land boom after World War I and had to give a mortgage.

I mail out a substantial volume of literature to State Grange officers. Much of this is literature which I have selected from the writing of others because of its worth. It is a big job to simply select from all the literature that comes to our office, material that is well written and of interest to State Grange officers. In many instances significant articles are too technical for the average person.

The Grange has a number of session committees which draft policy recommendation for approval, modification, or rejection by the delegate body. To some extent I service these committees with appropriate material. Between sessions I act as sort of a secretary for some of them. At National Grange Sessions I act as a consultant. It is difficult to describe what I consider good material suitable for distribution. Here again the language must not be too technical

and data in chart and table form should be presented wherever possible. The tables and charts must be easily understood as they generally are if set up according to accepted principles and methods.

From a few observations, I believe that line charts are not as well understood as bar charts or charts showing some proportion of size of the variable.

Farm people and farm leaders do not like long articles or memoranda. If what is being said cannot be shortened, it is best to break a memorandum up into several memoranda and submit them with some time space between.

Somewhat related to the problem of presenting data or information is the problem of obtaining information. I had one experience with questionnaires that may or may not be significant. Last year I prepared a detailed four page questionnaire on health activities and sent one to each of the State Masters. It may have been the fault of the questionnaire, but it seemed that many of the State Masters did not like to fit the health activities of their State Grange into the mold of a questionnaire. This year in making a survey of the health activities in the various states, I simply listed seven points relating to health and asked the State Masters to say whatever they had in mind on those points.

I believe that response to a questionnaire will be better and possibly the quality of replies will be better if people being questioned are given as much latitude in replying as possible. This may not apply to all situations but I believe it does when only general information on the progress of a program or on some situation is desired.

Most of the data, information, and economic reasoning which I present are presented directly to the National Master, and the National Grange Executive Committee. I have indicated above that I do send some material to State Masters. Presenting material to the National Master and the Executive Committee is not very much of a problem of form. Agricultural economic data are simply presented in table or chart form. Information, for example, on how the crop insurance program operates, is presented in direct language. Economic reasoning is at times very difficult to present, not only because it may be very abstract but also because the farm leaders may be antagonistic toward certain theories. Nevertheless when asked for his ideas on a subject I believe that a farm organization economist should always present what he believes is sound.

Some very delicate situations arise when a farm organization economist is of the opinion that the policies of his organization are unsound, and if he at the same time subscribes to a theory which his organization may be lashing out at.

Before I started working as a farm organization economist, I reached an understanding with my employer that I would always present what I thought was sound, even if I knew it was not in harmony with the organization's policy. On the other hand I was never to publicly criticize my organization's policy, but I was free to express my ideas to those responsible for determining policy.

Some fellow economists may disagree with the view that it is proper for an economist to present arguments for use by a farm organization in support of a policy that he considers wrong or unsound. However, there are usually two sides to every argument and an economist should understand an issue well enough to be able to present all sides. There may be some question as to the propriety of an economist helping with the manufacture of plausible reasons, however specious he may know them to be, in order to help rally support for some activity or policy. I have never been asked to do this.

Even though a farm organization economist recognizes that his organization may be opposed to the policy recommendation of economists, he nevertheless wants to, and feels he should, present the economist's reasoning. To do this without creating antagonism is a problem. However, a farm organization economist soon learns how to get a friendly and receptive hearing by some method or other.

My experience indicates that a farm organization economist should not take the attitude of an advocate. He must take the attitude that he is there to explain the economist's reasoning or to explain why economists consider this one policy unsound and why they consider that other policy sound and so on. If you present the economics of a policy problem as the reasoning of the economists and not specifically as your own reasoning, it takes away the element of personal feud, even though it is understood that you subscribe to the reasoning. While this may not be an ideal approach, your listeners at least keep an open mind.

Rather than present arguments that are hard to follow or understand, it is best to deal in simple facts and incontrovertible arguments and to spend most effort emphasizing them. Rather than

argue, for example, that freer world trade would permit greater specialization and more efficient use of resources, it is best to set up a simple illustration of the advantage of two countries trading, say automobiles and wool. It is well to point out easily grasped facts such as (1) exports reduce the amount of goods available for domestic consumption and imports increase the amount and (2) it is necessary for us to import goods if foreign nations are to have dollars with which to buy from us. If analysis of past data clearly shows a stimulus to agricultural exports from lower tariffs, this can be shown to advantage. It is well to emphasize that our standard of living cannot be reduced if we maintain full production at home, and that imports on top of full domestic production will increase our standard of living.

I have learned that economists sometimes engage in abstract reasoning without sufficient regard for difficult situations in which policies may operate. It is the responsibility of administrators to fit policies into such situations. This often requires means and measures not in conformity with pure economic theory. Economists should take care therefore to approach all problems with an open mind, for frequently they may be called upon to analyze which is the lesser of two evils.

After enough discussion with Grange officers, we usually come to understand each other—how our points of view differ and frequently how we quite closely agree. If freer trade would tend to shrink the agricultural sector by an economic squeeze, I do not blame farmers for wanting high tariffs. Also I recognize there is some merit in the argument that it may be worth something to a nation from a social standpoint to keep more people on farms in rather prosperous conditions as might be done by tariffs on farm products. A farm organization economist must recognize that farm organization policies are determined not solely on the basis of economic considerations.

By showing full regard for the farm leaders' point of view and not taking the attitude that their arguments are outweighed by your own, or that their policy is morally wrong, it is possible to present the purest type of economic reasoning in theory and get a very receptive hearing.

Now that I have discussed problems of presenting economic data and reasoning to the membership and officers of a farm organization, I would like to indicate the nature and scope of my work as the economist for the National Grange.

One of my duties is to bring together pertinent data on problems before the National Grange. The National Grange is very interested in revising the parity formula for example, and of course data are needed on prices received by farmers for the various commodities as well as prices paid. Calculating parity prices according to the formula proposed by the National Grange and according to other formulas is one of my functions.

In presenting testimony before Congress and before Government agencies it is at times necessary to bring together a large body of data and to put them into suitable tables or charts. Sometimes the National Master or the Legislative Counsel requests specific data but again it is up to me to determine what data might be helpful.

Grange leaders want to be currently informed on prices, wage rates, interest rates, profits, marketing margins, the Federal budget and so on. It is my job to bring to their attention in convenient form, significant data and significant changes in economic conditions.

Farm organization officials expect their economist to keep a large volume of economic data in their memory. When participating in unrehearsed radio program and on other occasions, time is not allowed for reference to source material.

Federal aid for education is one of the issues before the National Grange. It is my job to bring together data by states on income, taxable property, number of school age children, school enrollment, length of school term, expenditure per student, teachers pay, migration of rural youth to cities and other such data bearing on Federal aid for education.

At the Annual Session of the National Grange, I am usually called upon by several committees to help them prepare their policy recommendations. They too want to hear the economist's viewpoint, or they may simply want information. At times they may tell me to write up a tentative statement and then they go over it and change it to suit their ideas.

Data are not the only kind of information which I may be requested to present. Grange officers or people may want to know more about how marketing agreements are set up and operated. Questions may be raised about the ITO, the FAO, or the whole United Nations set up. Sometimes specific questions are asked. For example they may want to know what proportion of the cost of a water pond are paid by the Conservation Program.

I have already indicated that a farm organization economist is called upon for economic advice and counsel. My duty is frequently to read over testimony prepared by the National Master and to see if I find anything incorrect or unsound, and possibly to suggest additions or a new approach.

We receive many research reports and articles on economic problems at the National Grange office. To the extent time permits, I read these reports and mark for the National Master's attention the significant statements.

Frequently the comments of the National Master are desired on material sent to us. If time permits, he studies the material, and prepares his own comments. On other occasions he refers the material to me or if he does not know the author. If the comments are sent out under his signature, I try to reflect his thinking.

So many good books and articles are published on subjects pertinent to our work that it is impossible to review more than a small proportion of them thoroughly. Good summaries in articles and books aid us in keeping up on the various fields of thought to some degree.

The Master of the National Grange was a member of the advisory Board to the Office of War Mobilization and Reconversion. This agency initiated a number of economic studies and the economists of the organizations represented on the Advisory Board met with the research staff of OWMR to review the research results. The first research study which I reviewed was the wage price study completed in the late fall of 1945. Except for the labor economists almost everyone argued that it was not possible to raise wages 24% and still hold the price ceilings, where they were—something the original study purported to show as being possible.

Another study undertaken by the OWMR research staff was a guaranteed wage study. Here too the economists for labor, business, and farm groups looked over the study and offered their suggestions. Many of the suggestions were taken into account in the final report. Because both labor and business economists looked upon each other as being biased in evaluating these reports, a great deal of weight was attached to what was said by the farm organization economists.

I mention these two OWMR studies and my contact with them to indicate the wide scope of affairs which a farm organization economist must deal with and also to indicate that it has come to be

quite well established that the behavior of business and labor is of direct concern to farmers.

There are all kinds of meetings which I am called upon to attend. It may be a meeting called by the Federal Crop Insurance Corporation to consider problems of extending crop insurance to potatoes, it may be a meeting in the State Department to discuss ITO, UNESCO, or problems of denazification. UNRA may want our advice on setting up a campaign to get contributions from farmers of livestock to be shipped to war torn countries. The National Educational Association has meetings of various kinds and we are asked to participate. There are meetings sponsored for traffic safety, farm safety, fire prevention and so on. The Office of Education has a Citizens Federal Committee to deal with the teacher crises. The Retaining and Reemployment Administration had an Advisory Committee and wanted farmer representation. Recently the Senate Committee on Civil Service appointed an advisory committee and as the alternate for the National Master I usually attend these meetings. The National Post War Conference, now the Conference of National Organizations, meets several times a year to consider major national problems. I have attended several of these conferences and at times it is my job to present a paper for the Grange.

One of my big assignments is in regard to the National Grange Health program. This is more in the field of sociology than economics but because of a limited staff at the National Grange Office, I do considerable work on health. Much of the work is promotional in nature—that is, trying to get State Granges to sponsor group hospitalization and surgical care or to organize cooperative hospitals and clinics, and trying to get farm people to avail themselves of the benefits provided by the Federal Hospital Survey and Construction Act.

The inability of many farm families to pay for adequate medical care is an economic problem on which I am expected to develop some helpful ideas. It is my job to be informed on health issues, health conditions, health programs, and so on. There are usually several meetings a year to attend on health programs. The Farm Foundation has brought the farm organizations together in a Conference Committee on Rural Health Services, and the American Medical Association sponsors a Rural Health Conference and holds meetings during the year to get the advice and cooperation of farm

organizations in their effort to improve the availability of medical care in rural areas. The Cooperative Health Federation of America is another organization we work with on health problems. On one occasion I testified before a Congressional Committee on a health bill.

A characteristic of my work as a farm organization economist is not only the scope but also the number of assignments that come to me. In my previous employment I was allowed enough time to thoroughly study every aspect of the problem at hand. In my present work, however, a new assignment never waits for the old one to be finished to my satisfaction. A farm organization economist, I find, should be so well informed and his ideas on any one of countless subjects so well formulated and considered that he does not need to stop for much reading or thinking. Because of this, a farm organization economist must develop to a large extent on experience.

If a farm organization economist is not familiar with all the source materials and if he does not have them on hand, the next best thing is to know who can provide them. I find that usually there is someone in the Government whose work relates to the question or problem before me. These people can frequently give me the data or information I may want over the phone. They are usually so familiar with literature in their field that they can refer me to the best information on the subject I am interested in. This saves me much time and permits me to get more work done. Sometimes by having a luncheon with a person in the health field, for example, I can get as many questions answered and learn as much as by spending a whole day hunting for literature and reading what I may find.

As the economist for the National Grange I do very little original research. Generally there has been more research done on problems that come before the Grange than I can find time to read. Under these conditions it would be unwise to spend a great deal of time on original research projects. Government agencies and colleges usually follow important economic problems so closely that research is nearly always available right up to date.

I have done a small amount of research on parity, and probably some of the economic analysis on other problems comes close to research in theory. I do feel that some points in the farm program of the Grange should undergo research analysis, but the pressure of day to day work prevents this. Usually the best I can do is to point out, for example, that benefits from diversion to lower uses, that is,

a multiple price system, depends upon elasticities of demand, but I have never had time to actually work a situation through for a commodity.

In connection with research work I should mention what I believe is a unique situation in the Grange. In Washington we have the Potomac Grange. Membership of this Subordinate Grange is made up of many professional people from nearly every possible field, employed both in and out of the Government. Every year study groups are organized to work during their spare time on specific problems outlined by the National Master. Frankly, I must say that I could never turn out as good a study on "Necessary Improvements in Rural Education" as the professional education people. Similarly people in the State Department, in the Office of Foreign Agriculture Relations, in the tariff commission, and people employed by private export associations can answer questions raised by the National Master on ITO and commodity agreements very exactly and very fully. I work with these study groups and make what contributions I can. Probably my chief function on study groups is to indicate, as best I can, the exact questions the Grange wants answered.

As a final word I want to say that my work as a farm organization economist is most interesting. Because farm organizations are interested in nearly everything that happens both in and out of Government, a small staff means that work is extensive and not intensive in nature. As much assistance as possible is sought from the outside in obtaining data and information and even in getting research done. Problems of effective presentation are mostly a matter of maintaining clarity as far as the economist is concerned and journalistic technique as far as the information man is concerned.

DISCUSSION*

W. GORDON LEITH

National Council of Farmer Cooperatives

In recent years many national business, labor and farm groups have added economists to their staffs. The papers presented this evening show that economists are making valuable contributions to farm organizations—they are not added to staffs merely as a matter of fashion.

* A discussion presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947.

The papers you have heard this evening could possibly be presented in a more lucid manner by the administrative heads of farm organizations. Most professional people display a degree of modesty in discussing the role they play in their respective bureau, department, or organization. However, I believe my colleagues have tempered their modesty by a desire to be factual and informative.

These papers should be of considerable interest to the fraternity of professional agricultural economists because farm organizations do swing a great deal of weight in the determination of national agricultural policy. It should be of interest, therefore, to see what role economists play in the formulation of policy, what are the needs for basic economic data, what are the problems in presenting economic data to members and how is economic data used as a basis for legislative action.

Let me turn first to the subject of the need for basic economic data. Farm organizations leaders use economic data constantly. They find it necessary to keep up to date on current matters relating to agriculture and to our whole economy. They must view economic data, not as mere interesting facts, but rather as a contribution to their thinking on action and policy matters. By and large basic data on acreage, production, wages, prices, etc. are readily available. It is merely a matter of putting one's finger on it. In this respect the organization economist is often called upon to assemble data, analyze data and put it in a desired form for specific purposes. At times member groups call upon the organization economist to provide them with economic data to be used in articles or speeches.

Fairly complete data is available on major farm products but at times there is a need for economic data on minor farm products. A certain amount of data is available from federal agencies, trade groups or trade publications but it is oftentimes rather fragmentary.

Summary data is oftentimes needed by farm leaders to get a quick and accurate grasp of a situation without wading through a large stack of publications. Examples of what I have in mind are—What is the situation on processed foods inventories? or What marketing agreement programs are in effect as of a given time? If this summary information is not readily available the organization economist may be called upon to bring it together. In meeting this need for summary information the various "Situation" reports published by the BAE are of considerable value. The new "Agricultural Outlook Digest" will also fill a need.

Turning to the field of cooperative marketing and purchasing we find data readily available on the number of associations, number of members, and volume of business expressed in dollar units. At many times it would be of value to have volume of business data expressed in physical units especially in a period where price changes are large. I realize that this is no easy task.

About ten years ago a comprehensive survey was undertaken of all the marketing and purchasing cooperatives in the country. The resulting statistical handbook contained a wealth of important data. This publication is now outdated and a revision would be of considerable value.

Very little information is available on cooperative activity in our econ-

omy other than that coming under the classification of "farmer" or "consumer." A brief study I made a year ago showed that principles of cooperation and mutuality are very widely applied as to products and services. Examples are retailer cooperatives in the grocery, drug and hardware fields, where retailers have established cooperative wholesale organizations. Literally scores of types of cooperative or mutual businesses could be listed. Some are only quasi-cooperative in nature, while others adhere more closely to cooperative principles. What information there is on these miscellaneous cooperative groups is outdated and fragmentary.

Turning back briefly to statistics on farmer and consumer cooperatives one finds there is some overlapping the statistics published by the Farm Credit Administration on farmer cooperatives and those of the Bureau of Labor Statistics on consumer cooperatives. Statistics of farmer cooperatives tend to neglect the various types other than marketing or purchasing such as artificial insemination associations and mutual irrigation companies to name but two.

Before leaving this discussion of economic data I wish to comment briefly on a related subject. Many plans and proposals have been put forward by economists and others to improve certain agricultural conditions. A fault which is recognized by farm leaders and congressional committees is that so often these proposals, while sound in principle, are vague in details. As one example the parity formula has been a much discussed subject. Proposals for modernizing parity or shifting to a new formula usually contain only the bold strokes, and the details are left to be filled in by someone else.

The second and third papers deal with the actual functions of the organization economist. Dr. Herrmann first creates the impression that the role of the economist in the formulation of policy is fairly limited. However, in developing his paper it is seen that the economist makes many contributions to policy even if some of them seem to be around the fringes of the policy-making process. It should be remembered that economists are relatively recent additions to the staffs of farm organizations and it does appear that their influence is growing.

Basic policy of farm groups, as Herrmann indicates, is apt to be changed slowly. Major policy reversals are almost never made. It is far easier to adopt policy on a subject of a virgin nature to a farm organization than to change a policy that an organization has stood for and fought for over a period of years. This tends to limit the role which any employee of a farm organization can play in policy formulation.

Dr. Halvorson has pointed out that policies of farm organizations are not determined solely on the basis of economic considerations. However, in determining policy, farm leaders should be aware of the economic implications involved and these combined with other considerations will add up to the adopted policy. Membership of farm organizations varies considerably as to geographic location, commodity representation, and political belief. This tends to discourage narrow and selfish points of view on major issues and adds balance to policy decisions.

The point is also made that the views of the economists sometimes vary

with those of his organization. No employer wants a strictly "yes" man on his staff. And speaking of diverse views, even members of the group meeting here this week are at wide variance on several important agricultural issues.

Dr. Herrmann speaks of adding "flesh and blood to the sometimes bare bones of official resolutions." In some cases the vagueness of a policy statement leaves doubt as to the type of body one is supposed to build on the official bones. Policy arrived at by compromise may be a masterpiece of double meaning.

As Halvorson has so well illustrated in his paper the farm organization economist is called on to perform many duties. As a result the time that can be spent on detailed analysis of any one policy problem is limited.

Before leaving the subject of the role of the economist in policy formulation I should like to call attention to the contributions of economists who are not employees of farm groups to the policy-making process. Not only through their writings is a contribution made, but in recent years many outside economists have appeared before sessions of farm groups considering policy matters. Not all farm leaders regard college and government economists as long-haired theorists.

Dr. Halvorson's paper is in two parts covering the presentation of economic data and a description of his work as a farm organization economist.

The subject of effective presentation of data brings up many problems. One criticism frequently heard is that farm organizations speak only to the farm audience. In other words on such issues as taxation of cooperatives or the high cost of food, to use two examples, it is said that the farmer's point of view must be made known to businessmen and consumers in general and energies should not be exhausted in trying to inform or convince those already on one's side. This appears to be a legitimate criticism and it is one to which information and public relations personnel are applying themselves.

Many avenues of information are used by farm groups such as news letters, magazines, special reports, meetings, and press releases. Frequently farm organizations mail to their members, board of directors, or to committees concerned, copies of bulletins or reports issued by federal and state or private agencies. In using information channels it is necessary that economic data be in an understandable manner. For example, a person should make sure that his audience knows the meaning of such things as FAO, IFAP, and ITO if he is using them. Words and phrases should be understandable and the use of highly technical terms should be avoided. This point was emphasized by the Retail Trade Advisory Committee to the U. S. Department of Commerce who in a recent report listed as their first resolution, "we recommend that publications for retailers should be written in the economic language of the 'Main Street' merchants."

The use of good summaries is important in the presentation of economic data and information. The manager of a western poultry cooperative stressed this point in a recent meeting repeating the often heard criticism that so much material passed over his desk that he was able to read only a small portion of it. His solution was to assign it to an assistant to ferret

out information considered of importance to the manager. This manager called for more summaries. Many agencies issuing publications use summaries, and the trend appears to be to place them in the beginning where they will be spotted immediately.

I think the recommendation that all the zeroes should be added when presenting data in table form is somewhat over-zealous.

Halvorson has outlined in considerable detail his work as a farm organization economist. Many professional economists will be impressed by the extremely broad and varied nature of his work. This is true in varying degrees for economists of all farm organizations but is more true for those employed by the general farm organizations as contrasted to the more specialized farm groups. It is seen, however, that these many duties have an economic thread running through them. The variance of duties results from the fact that farm groups operate on modest budgets with resultant small staffs.

Mr. Smith in discussing the use of economic data as a basis for legislative action has put forth some interesting observations. Economic data is used extensively in legislative work. It is used by proponents or opponents of bills in testimony at hearings. It is used by Congressmen in debate on the floor. Congressmen are continually calling on government bureaus or the Library Reference Service for facts or figures.

The paper points out that given data will be used to support diverse points of view. Does this imply a weakness of the data or does it indicate the strength of convictions of those using the data?

A point is made regarding the faulty prognostications of some economists that there would be heavy unemployment shortly after V-J Day. It is true that these predictions had an effect on government action but again I ask does this show a weakness in economic data or does it show the limitations of the human mind? The points raised by Mr. Smith indicate that more stress should be placed on objective interpretation of economic data.

THE ROLE OF SAMPLING IN FARM-MANAGEMENT RESEARCH*

CHARLES F. SARLE

Bureau of Agricultural Economics

THE ever-changing phenomena of how farmers make a living with the resources they have available cannot be brought into the laboratory for analysis and study as can the phenomena of many of the physical sciences; nor can such phenomena be investigated by controlled experiments as is the case with many of the natural sciences. Social science research depends upon the valid analysis of representative observations of continuing ever-changing complex processes. In farm management, one of the social sciences, representative sampling is essential to valid conclusions and generalizations.

Research in farm management has always been based primarily on data concerning the operation of individual farms. Both farm-account records and farm-survey data are used. The farms from which these data are obtained are in fact "samples" of farms.

Of the 251 research projects reported as in progress in 1940-41 by the Social Science Research Council only one dealt with "sampling procedures." The report of the subcommittee on farm management¹ describes and classifies these 251 projects in that field. It also points out that appropriate objective sampling techniques are essential in practically all phases of these projects.

A few weeks ago I wrote to agricultural economists in some 20 agricultural colleges, stating that I had been assigned this topic and asking for their ideas concerning the more important problems that are commonly dealt with in farm-management research, together with some indication of the relative importance of these problems. The replies helped a great deal especially as several pertinent questions were raised concerning the application of sampling principles to various types of problems in the field. Briefly here is the gist of these letters.

Current problems in farm-management research involving sampling appear to fall into three main groups:

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947.

¹ *Farm Management Research 1940-41*, Social Sci. Res. Council. Bul. 52, 1943, a report by the subcommittee on farm management—Walter W. Wilcox, Sherman E. Johnson, Stanley W. Warren, Social Science Research Council.

(1) *Current description of farm organizations and farm practices and changes* resulting from the effects of improved technology and from the impact of environmental forces such as high farm wages, prices received and paid by farmers, high prices of farm land, and weather. Apparently this information is needed by type of farming areas, by types of farms within such areas, by size of farm, etc.

Mr. William G. Murray of Iowa says, "In doing this work much more needs to be done than merely summarizing census data. . . . What we need to know is not only the predominant type in any area and how the area is delineated but also the *frequency distribution* of different type combinations within the area."

(2) *Ascertaining the factors that affect differences in net income*: In this group are included influence on returns of size of business, farm organization, combination of enterprises, farm lay-out intensity of operations on returns, and production opportunities. Also included are the relative efficiency of size of business and of tenure and leasing arrangements. In Oklahoma for instance, situations resulting from tenure and leasing arrangements are preventing badly needed adjustments in farm organization.

George Aull of South Carolina specifies particularly the "economics of 'small' farms and corporate versus individual management."

Speaking of factors that affect financial success Lynn Robertson of Indiana says "In the past considerable emphasis has been given to this problem. Principles have been established so firmly that farm-management research needs to be refined beyond these objectives. We need more information on how to secure large livestock receipts per dollar's worth of feed rather than to establish that receipts per dollar's worth of feed is an important factor."

Mr. Robertson then suggests the importance of the third group of problems which are also mentioned frequently in many of the letters.

(3) *Ascertaining the profitability of enterprises, methods, and practices*: This group contains farm-enterprise studies which involve input-output relationships. Walter W. Wilcox, Wisconsin, mentions two studies of this type. One was a study of tractor farming with horses in addition to a tractor and tractor farming without horses on one- and two-man farms. The other was a study of the reduction in man-hours per cow (chores) brought about by an increase in the size of the dairy herd. This study was made in each of two type-of-

farming areas among farmers who sold fluid milk wholesale and those who sold to a cheese factory. Approximately an equal number of farm was selected by size groups.

So much for the three main groups. The letters mentioned additional problems such as land use and interregional competition (Indiana); seasonal distribution of farm labor, requirements for farm labor by type-of-farming areas, principal crop and livestock enterprises by K. C. Davis of Oklahoma; and "finding new ideas which wide-awake farmers are trying on their own" (Iowa). The budget-analysis approach with "typical size and type farms" was also suggested as a means of projecting the effects of proposed adjustments in farm organization under varying economic conditions.

Sampling Problems

Most of the replies mentioned practical problems in sampling. Farm-management research people generally recognize the desirability, if not the necessity, of having a representative sample in studies in the first group—*The current description of farm organizations and practices*.

"In surveying we generally try to get a true sample of the universe" writes one agricultural economist. Another says, "From the sampling standpoint, the problem is to select a sample of farms that will give a representative picture for the individual farms in the area as to current conditions on those farms."

Several mention how lack of adequate funds for farm-management research influences the use of valid sampling methods. One economist says, "Too often a worker is given too little money to make a study and do anything like an adequate sampling job. He has to compromise between the amount of money he has and the sampling job to be done."

Several question, and rightly so, the utility of a strictly random sample in certain phases of research in farm-management. One writes, "If we followed the usual procedure of using a strictly random sample, some of the more important aspects of the study would come up with insufficient data to adequately treat some phases of the study."

Another says, "With the limited number of records usually included in a farm-management study it usually is not desirable to have records of *off-type farms*. . . . Sometimes we deliberately fail to get a representative geographical sample. For example, in study-

ing the influence of soil types on the production of crops of different kinds, we may look for a much larger number of farms of one soil type than the proportionate number for the area because we need to have enough records to get a good average for the sample." Apparently, he means a good average for each main sub-group of the sample.

George W. Westcott (Mass.) states the problem as follows: "The *objectives* of the research must determine the type of sampling required. Completely random samples are needed only if the objective is that of *describing* the agriculture of an area. Most farm-management investigations have objectives which require a high degree of homogeneity if the results are to be meaningful and not obliterated with averages (or arrays) of variables which are the result of the interaction of a collection of heterogeneous fixed factors

"Most farm-management research requires the stratification of the total universe into 'typical' or modal groups according to the need as determined by objectives. Of course, the theoretical foundation of stratification rests upon the assumption of a complete quantitative and qualitative knowledge of the universe and that the universe is capable of being classified into reasonably homogeneous groups. Stratification techniques as related to farm-management research objectives constitute the most critical problem in the sampling process"

Frequent mention is made of the lack of representativeness of farmers who keep *farm-account books* in cooperation with the College. The question is raised as to how such a sample can be used as a basis for valid generalization and the development of sound principles of farm management. One economist says, "We are quite confident that our farmers who keep the account books rate somewhat above the average." Another remarks, "Probably there has been some improvement in sampling for surveys, but not much improvement for farm-account books. The problem presents itself as to what questions may be answered with data from farm account books if the sample is not satisfactory for many standpoints."

Closely akin is the problem of another economist. He writes, "Another factor which has always been important in farm-management research and which tends to complicate the sampling procedure is that we must go back to the same individuals rather frequently and for a great many details. This makes the matter of interest in cooperation on the part of the farmer very important. If

he does not have the proper amount of interest, you may lose his cooperation before you have completed the study, or if he does carry on, you would not get the quality of data that is so essential for a careful analysis of the problem involved. For these reasons we attach considerable importance to the opinions of county agents, AAA administrators, and others as to the likelihood that we would get a high quality of cooperation from a certain farmer before including his farm in the sample."

These are all problems that arise in sampling and I shall try to throw some light on them.

The Application of Objective Methods of Sampling in Farm Management Research

Generally speaking, a representative sample of farms, farm operators, or farm owners in an area or in a subpopulation thereof may be selected objectively in three ways:

(1) *List Sampling.*

- (a) From an up-to-date list of all the farm operators within an area such as might be available from a complete annual assessors' State census or from AAA records when all of the farmers participate.
- (b) From the list of respondents of a large annual cross-section interview sample such as was taken by BAE in January 1947.
- (c) From special up-to-date lists that include all the farm operators in a specified category, such as cattle or sheep growers in the range States, commercial producers of important fruit and vegetable crops, or large commercial farms.

(2) *Area Sampling*, such as the Master Sample.²

(3) *Combination of Area and List Sampling.*

In most of the 12 States in which annual assessors' agricultural censuses are taken, the data are limited to acreages of crops. This limited coverage of the basic characteristics of a farm greatly reduces the usefulness of assessors' censuses for sampling purposes when broader characteristics are required in specifying the subpopulation to be sampled. Additional "key" items might be added to the assessors' census but the cost might be considerable. In only

² "The Master Sample Project and Its Use in Agricultural Economics," by R. J. Jessen, this JOURNAL, Vol. 29, No. 2, May 1946.

a few areas is AAA participation sufficiently complete or representative for use in list sampling.

The January 1947 interview survey of the Bureau of Agricultural Economics of about 14,500 farms is not adequate in size and county coverage in most States to be of much use on a State basis for list sampling or subsampling. However, it could be used on a regional basis or by major type-of-farming areas. New York and Pennsylvania are probably exceptions as the sample in these two States was made up of more than 750 farms. Also it was distributed over most of the important agricultural counties. The problem of keeping the list of these respondents up to date from year to year also arises.

The statisticians in the Agricultural Estimates portion of the Bureau of Agricultural Economics and farm-management research workers have a *field of common interest*. Both need reliable data from a representative sample of individual farms in a given geographic area. The agricultural statistician needs such data as a basis for estimating changes in acreages of the various crops, their production, numbers and kinds of livestock, the production of livestock and livestock products, the number of family and hired farm workers, farm wage rates, etc. The farm-management worker wants a *current description* of changes in farm organization and practices which result from the impact of environmental forces—the first group of problems in farm-management research.

The official BAE estimates which show over-all changes in time are available only as totals or averages for States. The farm-management investigator, however, needs more than this. He needs reliable data concerning the *operation of individual farms* which can be classified by size and type of farm, tenure, similarities in production opportunities, combinations of farm enterprises, etc. He wants *frequency distributions* by these classifications, and he also wants to determine internal relationships for homogeneous subgroups of farms.

If a *large annual preselected interview sample*, say 800 to 1,500 farms in each main type-of-farming area in a State were available, what excellent service could be rendered to the agricultural interests of that State. The agricultural statistician could make and publish estimates by type-of-farming areas within the State, not only for acreage, production, and livestock, but for many other aspects of agriculture, such as farm machinery and facilities, farm population and migration, and other items that cannot be success-

fully sampled by mail. These estimates also could be presented in frequency distributions, frequency of occurrence of farm practices, etc.

The State statistician could use the respondents of the annual interview survey as a representative mailing list for important mailed samples. If the economic, social, or psychological factors associated with the differential response of mailed inquiries were determined, he could stratify and weight by these factors. Thereby much of the selectivity of a mailed sample could be corrected. A better job might be done with a smaller sample than is now used for mailed surveys.

The agricultural statistician could then supply the information needed as to "how many" and "how much." The farm-management researcher would have at his disposal on punched cards some of the data that is needed for testing hypotheses and for understanding the "why" and the "how" of the ever-changing phenomena as to how farmers make a living with their respective resources under the impact of forces over which they, as individuals, have little or no control. This is a field of investigation that farm-management workers do not enter because limited research funds are expended on descriptive studies.

I have just said that they would have *some* but certainly not all of the data they need to understand the "why" and the "how." In addition, they will want to study *intensively* problems for which highly trained interviewers will be required. Some of these are the problems in farm-management research that go beyond a description of current agricultural changes, the type of problems in the second and third categories—"ascertaining the factors that affect differences in net income" and "ascertaining profitable methods and practices."

For these problems the strictly random sample is not efficient. Rather, a *subsample* of the *large annual sample* could be utilized. From such a sample it is simple to select the type of farm, the size of farm, the particular farm enterprise, the combination of enterprises, or the specific farm practice for studies of input-output relationships and other investigations.

For any particular study the farm characteristics of the subsample could be made as homogeneous as the investigator might desire, within the limits of the frequency of occurrence and variability of items, and size of the sample in the area. A representative

sample of farms by soil types or land classes could be selected and studied as suggested by both Robertson and Hill. A differential sampling rate could be used within the several classes of the frequency distribution.

It is generally recognized that farms of a given size and type are likely to be more desirable as universes from which to generalize than are political areas such as townships or counties.

Hill and Warren of Cornell emphasize just this point.³ "Obviously one of the first steps is to get a sample of farms which is as adequate as possible for the problem which we propose to investigate. I would like to suggest that in my opinion research workers in the field of farm management have frequently failed to limit sufficiently the objectives of their studies. If one wants to obtain reasonably precise answers, he must usually sacrifice something in the number of questions he proposes to try to answer and draw a sample accordingly. Too often we go after a little information on a long list of questions and scatter our fire; consequently when the study is completed all we can show as results are rather broad generalizations, many of which were probably known or rather obvious before we started. It seems to me that before workers in farm management or other branches of agricultural economics can aspire to calling their efforts "scientific," they must be willing to follow the lead of workers in the biological and physical sciences and limit their objectives, design their samples, and use methods of analysis suitable to the job of testing carefully stated hypotheses. Too frequently we start out to get 'all the answers to all the questions' in one farm-management study."

Another approach is especially suitable for States in which intensive economic and marketing studies of commercial producers of fruits, vegetables, and dairy or poultry products are contemplated. In such States, *complete current lists* of these special producers can be developed for the entire State or for a particular area. Then a sample can be drawn from that list. The list must be current and complete and the location of the farms of these commercial producers must be shown on appropriate maps. A highly efficient sample design can be developed from such a list.

The possibilities of establishing and maintaining current lists of commercial producers have been superficially explored. This is a type of problem that could be attacked jointly by the agricultural

³ This same principle is brought out in Bulletin 52 of the Social Science Research Council.

statisticians of BAE and the Agricultural Economics Departments of the various State colleges.

It might prove worth while and relatively inexpensive to work with the Vocational Agricultural schools in each State. For example, in South Carolina, which has less than 50 counties, there are 250 such schools with white teachers. This means an average of 5 schools per county. The geographic area served by each school is relatively small and these teachers with their classes would be in a position to establish such a list and to locate the farms on appropriate maps at a minimum of expense.

These lists could be established each spring before the schools close for the summer. They could be checked for coverage by other people familiar with the agriculture of the county. If some idea of the size of the enterprise, acres in commercial crops, number of fruit trees or vines, or size of herd or flock, could be obtained at the same time, this information would be valuable in selecting an efficient sample.

Another type of agricultural phenomena presents special problems in sampling. This relates to commercial crops grown in concentrated *localized* areas because of special requirements of soil, climate or markets, such as peaches, sweet cherries, early vegetables, etc. For studying such farms, either especially designed area segments or list sampling may be utilized. Usually so few farm operators grow these crops in localized areas that a relatively large sample, percentagewise, is required for such studies.

One other sampling problem that was frequently mentioned in the letters from farm-management workers has not been touched upon. That is: How to use the farmers who keep farm-account books in cooperation with the college as a sample?

In connection with this question a quotation from Social Science Research Council's Bulletin 52^{3a} is appropriate: "Although it is quite apparent that a large amount of valuable information can be obtained from farm-account records kept by farmers willing to keep them, their research value has been greatly improved where they have been supplemented with similar data on more representative farms. Farm-management workers should recognize that the value of farm-account work lies largely in the field of extension, and in service work to the farmers who keep the records."

A small sample of farms on which farm-account records are kept

^{3a} Walter W. Wilcox emphasizes this point in "Research in the Economics of Farm Production" which appeared in the August 1947 issue of this JOURNAL.

could be a valuable basis, because of the completeness and accuracy of the record, for developing rational alternative hypotheses which might be tested on a larger and more representative sample of farms. In fact, our hypotheses require repeated testing with representative sample observations taken over time. Agriculture is an ever-changing process in time and in space. It is like a river, in that one can never step in exactly the same river twice. Both the river and the person change in time.

*Suggestions for Meeting Sampling Needs in
Farm-Management Research*

The practical question for farm-management research workers is how to obtain representative sample of farms for the several types of studies they have in mind, and how to get reliable data concerning these farms at a minimum cost. There appear to be two choices in the States which do not have complete annual assessors' agricultural censuses. One is to have a competent statistician develop the necessary sampling materials for the State and design a special sample for each study or group of related studies.

In the first place, the number of sampling statisticians is not sufficient to do this job for very many States and it will not be sufficient for several years. Furthermore, as this alternative would not fully capitalize on experience in sampling, schedule design, and operations, it would be unduly expensive and the results would not be satisfactory, at least for several years.

A second, and, to me a preferable choice, would be a *cooperative Federal-State program in sampling*, with the needs, facilities, financial resources, and experience of all pooled under unified direction and leadership. The college Departments of Agricultural Economics working with BAE offices and field research workers are probably in the better position to provide the leadership and direction in developing such a coordinated sampling program on a State basis. The Bureau of Agricultural Economics with its 41 State Statistical Offices and its field research workers located at Land-Grant Colleges is in a strategic position to provide the statistical core for the development and operation of an over-all sampling program on a State-by-State basis and to coordinate these programs among States.

Costs:

In a State of average size with, say five main type-of-farming areas, the cost of the annual interview survey with a minimum sample of about 4,000 farms probably would be not less than \$35,000 to \$45,000 annually, including the punching and machine tabulation and analysis of the data. If full use is to be made of the "Annual Master Sample" for subsequent subsampling in connection with special farm-management studies of farm income and expenses, profitable combinations of farm enterprises, profitable farm practices, input-output relationships, etc., this amount should be doubled.

At first glance, this cost seems prohibitive. But cost should be considered in relation to the value of the product. (If the value of the product is many times greater than the cost, then the higher the legitimate cost the better.) The farm-management specialists can evaluate the product of such a program. A sound sampling program would provide (a) farmers and agricultural interests generally with reliable current information concerning the changing aspects of the business side of farming and (b) workers in farm-management research with a sound scientific basis for many kinds of essential research that cannot now be done with the sampling facilities that are available.

The research worker could focus his investigations on specific problems that have evaded him in the past because he has not been able to obtain a homogeneous representative subsample of the farm population. He would be in the position of using a high-powered rifle rather than a blunderbuss. He could study the profitableness of farm enterprises in a given area, either singly or in combination, the comparative efficiency of alternative farm practices, and how size of business and the organization and operation of a given type of farm affects net returns. With the results of these basic studies he would be in better position to project the effects of proposed adjustments in farm organization and practices under varying economic conditions by means of budget analysis.

Without reliable current information concerning farming conditions and without the facilities for subsampling provided by a State annual master sample, farm-management research, extension, and teaching cannot be as effective as they should be, or shall we say must be, in the immediate years ahead when farmers will be com-

pelled by economic forces to make sharp adjustments in their farming operation. Without strong leadership and direction in farm management and agricultural economics, farmers will have no other alternative than to learn by trial and error how to use new technology and how to adjust to the rapid changes in economic conditions. Learning by trial and error can be very expensive in the uncertain years ahead, many times more expensive than the cost of an adequate and scientifically sound program in farm-management research.

In the meantime, it may be possible in some States to make a sound start in the right direction and to produce some results that would demonstrate the advantages of the more comprehensive program, that is, a pilot project.

In April 1948, the Bureau of Agricultural Economics plans to take a Nation-wide annual interview survey in the same 800 counties scattered over the United States in which the January 1947 survey was taken. The schedule will be shorter. It can be taken in 45 minutes to an hour on 90 percent or more of the farms. It will be limited to the basic characteristics of the farm. Because of lack of funds, the sample will probably be somewhat smaller than that of January 1947.

However, it would be feasible, if funds and other resources of manpower, etc. were made available in a State, to expand the size of this sample, say in only *one or two* important type-of-farming areas, distributing the sample in all the counties. Some additional "key items" could be included in the schedule if necessary, in order to provide a more adequate basis for the subsequent *selection* of *subsamples* for specific, sharply defined, studies of an intensive nature.

The minimum number of farms in almost any type-of-farming area probably would be, as stated previously, not less than 800. The marginal cost of expanding the sample in one type-of-farming area probably would not exceed \$6,000 to \$7,000. The "out-of-pocket" costs might be somewhat less, depending upon the extent that personnel already employed could be used for supervision and interviewing, and the extent to which State-owned cars could be utilized to reduce travel costs.

I would be glad to explore the possibilities of such a cooperative project, either on a type-of-farming area, or on a State-wide basis, with any one who may be interested.

THE ROLE OF MODERN STATISTICS IN ANALYZING FARM MANAGEMENT DATA*

PAUL G. HOMER AND EARL O. HEADY

Iowa State College

THE purposes of this paper are: (1) to discuss briefly the relationship of statistics to quantitative scientific research, (2) to outline some of the uses of statistics in farm management research, and (3) to list and discuss some of the arguments given for not using modern statistical methods in collecting and interpreting farm management data.

Many writers, including some who have written textbooks on statistics, have confused the discussion of the use of statistical methods by classifying statistics as a method of research on the level with experimentation and other methods. On the contrary statistics is a tool which is used in all quantitative research. It is true, of course, that the statistical methods used may be simple or complex; they may be efficient or inefficient and they may give biased or unbiased estimates, tests, or predictions. At the minimum, data are usually summarized by averages of one sort or another. These averages are statistics and are estimates of some population values or parameters. Since the data are usually based on samples, these estimates have a sampling error. In other words, the estimates would vary from sample to sample.

Appropriate statistical methods for analyzing farm management data cannot be discussed intelligently without considering the objectives of a study, the specific hypotheses to be tested and the sources of data. Statistics can make an important contribution to the success of a research study in the planning stage. A majority of the studies that end in disappointment failed in their conception and design. Other studies fail because of improper analysis and interpretation of the data obtained, but these are relatively few in number compared to the former.

The main steps in scientific quantitative research might be classified as follows:

1. The selection of a problem. Certainly one does not wish to select a problem of little or no interest, or one that has been solved previously. The success at this point depends upon one's knowledge

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947.

and depth of understanding of his subject, and statistics has little if anything to contribute.

2. The construction of theoretical models or solutions. This step is most important and is too frequently neglected. Without a theoretical solution it is improbable that one will be found in reality. Next the theoretical variables or quantities in our theoretical solution must be identified with actual or "real" variables that can be identified and measured. The model then becomes an *a priori* hypothesis about reality. The object of the experiment or survey is to test the model, theory, or hypothesis, these terms being interchangeable, with actual data. Furthermore one must decide in advance upon what bases the hypotheses are to be accepted or rejected. The construction of a worthwhile model depends upon one's technical equipment, imagination, knowledge, and experience. Statistics is one of the tools in the chest of technical equipment. This tool is an aid in setting up the model so that it can be tested objectively and efficiently. It is fruitless to continue with the study if appropriate research procedures and statistical tools are not available for testing the model.

3. The planning of a procedure for obtaining the necessary data. In this step the different methods for obtaining the data necessary for testing the hypothesis are considered. The advantages and disadvantages of the methods should be weighed carefully against one another. In selecting the method, one must consider the hypotheses chosen and the efficiency—amount of information per dollar invested. At the same time the statistical analysis to be used should be outlined in sufficient detail to see whether or not it is appropriate for testing the hypotheses. The statistician can be helpful in selecting an efficient sampling or experimental design, in checking to see if the data to be obtained will give unbiased estimates necessary to test the hypotheses and in checking and selecting unbiased and efficient statistical tools to be used.

4. The analysis and interpretation of the data. The statistical analysis follows directly from steps 2 and 3; however, certain precautions are necessary. Unforeseen difficulties or accidents may have occurred so that certain data are missing. Therefore the statistical model set up may not be appropriate without estimating the missing values or making some change in the model. Also before beginning elaborate statistical analyses, the success of the experiment or sample survey and the resulting data should be studied in considerable detail.

The Use of Statistics in Farm Management Research

As has been indicated already, statistics can be of most service to farm management research, involving quantitative data, in the planning of the study. Too many research workers consult a statistician, if at all, after the study has been planned, after the data are obtained and after they have experienced considerable difficulty in interpreting the data. Then they hope that the statistician might by some "magic" find something worthwhile in the data.

Statistical analysis can extract no information from data except that which was originally put into the data. The method of analysis should have been decided in the planning of the study and not after the data are obtained. Specific hypotheses should have been selected and a procedure so followed in collecting the data that the method of analysis selected is appropriate.

Frequently in farm management research the hypotheses if stated at all have been too general and vague. For example, many studies have been made to discover the factors that influence the net income on farms. Data that might be related to income have been obtained on as many factors as possible on as many farms as possible. Averages are then computed for one tabulation and then another and another. Regressions of one type and another are computed with one set of variables and then another. Such a procedure is "blind" empirical research and is inefficient, though some useful information may be obtained. Studies of this type are the ones that are likely to end with regression coefficients or other statistics that make no economic sense, and could be avoided to a large extent if appropriate hypotheses were constructed in advance. The only important place for the above procedure is to aid in setting up realistic hypotheses for future studies for which little if any empirical information is available.

The most direct method for testing a hypothesis is the experimental method, which has been considered to be, in general, not easily adaptable to research in the social sciences. Some argue that the costs and difficulties of using this method are too great to warrant its use. On the other hand, several writers including H. R. Tolley and M. L. Wilson state that many promising hypotheses concerning possible improvements in farm organization and operation have been formulated which could be tested only by the experimental method. Further they argue that with sufficient foresight and effort the method would be feasible in a number of cases.

Certainly one important body of data needed by economists comes from technical agriculture. Data are required on the effects of different crop rotations, of different rations and rates of feeding livestock, of fertilizers, of different pasture management practices and so on. Such data can be and are obtained most efficiently by the experimental method. Unfortunately the technical research workers have not in a large number of cases designed their experiments to supply the data needed by economists for a thorough economic analysis. Close collaboration is needed between the specialists in farm management and the specialist in technical agriculture in conducting the necessary experiments.

The economist has frequently tried to solve such problems by analyzing farm records. The results of such analyses are usually disappointing because of the large variability in the data. A few well designed and controlled experiments where feasible may give more information than thousands of farm records and at considerably less cost. Quantity of data is seldom a wise substitute for quality. Suppose that we wished to find the effect of crop rotations on the yield of corn from a sample survey of farms. We compute the average yield of corn following rotations A, B, C, etc. Certainly the differences among these averages cannot be attributed to the rotation alone. They are due to many factors. We next try to isolate and measure the effects of these other factors. If we have sufficient records and patience, this can be done, but we will find that our estimates of these effects will have large sampling errors. The proper statistical analysis for tests of significance and measures of reliability is complicated and costly because of unequal and disproportionate frequencies. Some people seem to believe that the effects of factors other than rotation on the yield of corn will "balance out" if a large number of records is available. This simply is not so. These other factors usually cause us to obtain biased estimates of the effects of rotations, and no number of farms, regardless how large, will give us unbiased estimates. These biases result from such factors as one rotation appearing on one soil type more often than on another.

We might wish to find the cost of operating home freezers on farms and the factors that influence the cost. Suppose that we place a meter on every home freezer in say a state to measure the consumption of electricity and that we obtained such information as size and type of freezer, inside and outside temperatures, type and quantity of food frozen in the freezer and the frequency of

opening the freezer. One would obtain an accurate estimate on the cost of operating a freezer but would learn very little about the factors that affect the cost. Again, a few properly designed experiments would yield much more information at less cost.

The authors do not wish to overemphasize the use of the experimental method because there are many areas of research in which its application is difficult and would require some original thinking and in others it is impossible. More use, however, should be made of the method in spite of the difficulties. There appears to be no valid reasons why a sample of farms could not be selected on which two or three methods of farm organization could be tested. There are such problems as guaranteeing that the farmers will suffer no loss as a result of their participation in the plan, but these problems could at least in some cases be overcome.

Farm management data are usually obtained from sample surveys. In most cases a sample gives more information per dollar invested than does complete enumeration of a population. The role of sampling in farm management research has been discussed by Mr. C. F. Sarle so only a few brief comments will be made on the subject.

Data in farm management almost always are a sample of some population, or universe. The data are a sample in space, in time or in both. Even if all the farms in a given county are enumerated and the conclusions reached are restricted to that county, which usually is not the case, one has a sample in time. Therefore the estimates made from the data are subject to sampling errors. Of course, one may not wish to make generalizations even about this particular county; then the problem is one of description and has no place in a research program.

Knowledge of how to select samples to estimate population characteristics more efficiently has increased rapidly during the past 10 years. More research is needed, however, on sampling methods for measuring relationships and testing specific hypothesis. Even in this area of sampling our ability exceeds that for constructing useful hypotheses, for deciding how to test these hypotheses, and for analyzing and interpreting data.

Objections Given to Modern Statistical Analysis

Numerous reasons can be found in the literature to suggest that statistical procedures more complex than simple averages or possibly free-hand regressions are not applicable or appropriate in

most farm management research. Briefly some of the reasons, followed with discussions by the authors, that have been given are these:

1. Statistical analysis does not apply since each farm is a self-contained entity and statistics are not adapted to individual cases. Too, the operator is not concerned with statistics since his decisions must be made by deciding between alternatives in consideration of his particular farm as a whole.

If the meaning of the above argument is that to be of most help to an individual farm operator one must get a detailed cost-account record of his farm and then, based on present knowledge of efficient farm management practices, advise him how to increase his net income, there obviously is not much need for statistical analysis. This, of course, is not research but extension work, and serves a most useful purpose. If on the other hand, data on one or more farms are obtained to discover, for example, the effect of various inputs on production, the results to be used on the particular farms studied and on other farms as well, then statistical methods are appropriate. One has a sample either in time or space or both.

2. The use of more complex methods such as regression requires a larger sample than does the use of means in tabular analysis. With small samples regression coefficients are frequently not statistically significant.

The size of sample needed to estimate a statistic with a given degree of accuracy depends on the variability of the data under study. Furthermore, the more efficient the statistical design employed the smaller the size of sample required for a given accuracy. The main argument against the tabular method is that it is, itself, relatively inefficient; consequently a large sample is required especially when the effects of several variables on a factor are being studied. Also, the tabular method gives no basis for tests of significance or for computing fiducial limits.

3. Erroneous inferences about the nature of a relationship may be drawn simply because of the existence of a statistically significant correlation coefficient. For example, there may be a high correlation between profits and the number of grease guns per farm.

Such an argument is of course, based on an erroneous conception of correlation. A significant correlation coefficient in itself does not necessarily demonstrate cause and effect. Certainly the person who

was so unacquainted with farming and with correlation as to compute a correlation coefficient to determine whether "increasing the number of grease guns per farm will increase farm profits" would likewise "prove" the same thing if tabular analysis were used.

4. Much of the work of farm management research has the purpose of illustrating facts and principles that are already known. Detailed statistical analysis is unnecessary in such instances.

The mere demonstration of known facts and principles is not scientific research. If one is reasonably certain that efficiency of the use of labor is directly related to farm income, it hardly seems necessary to demonstrate this principle over and over again.

5. The terminology of the more complex statistical methods is difficult for farmers to understand.

It is not necessary nor is it desirable to use technical terms when writing the results of research for the nontechnical reader. Research methodology and presentation of the results are two distinct problems. Few farmers would understand a statement that the interaction between the rate of fertilizer and the rate of seeding on the yield of corn was 10 bushels per acre. Yet most would understand an alternative statement that the application of fertilizer on plots seeded at the rate of 10,000 kernels per acre increased the yield of corn 15 bushels per acre whereas the application of fertilizer on plots seeded at the rate of 8,000 kernels per acre increased the yield only 5 bushels.

6. Statistical methods such as regression, covariance and analysis of variance do not possess the simplicity of computation that is inherent in simple averages and cross tabulation. Therefore, the easier methods result in savings of time and funds.

In any scientific study of quantitative data, the method of analysis should supply estimates of the accuracy of the predictions and conclusions made. This can be done at a lower cost by using the most efficient methods available, whether they be simple or complex. It costs considerably less to estimate a regression coefficient within a given degree of accuracy by using the method of least squares than by cross tabulation. Many studies that cost very little in terms of funds and time are very expensive in terms of the amount of information obtained.

7. Complex statistical methods may camouflage basic weaknesses in the data or in the analysis and interpretation since some people have a

tendency to assume that "everything underneath the cloak of technical terminology and complex analysis must be in order."

There are two aspects in the above argument. The first is that of academic integrity. The person who possesses the professional dishonesty to deliberately "cover up" weaknesses through complex analysis is the same individual who would "manufacture" figures to fill out the cells of a two-way table. As to the reader, he should scrutinize all aspects of a study before accepting the conclusions drawn. If he is in doubt as to the appropriateness of the statistical methods used, a qualified statistician should be consulted.

8. If farm management students published only those differences or regression coefficients that are significant say at the 5 per cent level of probability or less, then few results would be published.

Certainly one should not want to publish conclusions based on results that may merely be due to sampling or experimental error and not real effects in the population. As has been stated earlier in this paper, the economist is usually confronted with many factors that influence, say net income on a farm. These factors are extremely variable and their interrelationships are extremely complex. Also, it is agreed that considerably more work needs to be done by statisticians, preferably in close cooperation with economists, to develop more efficient statistical tools for analyzing such data. At the same time, the economists need to give serious and intelligent thought to constructing more useful and realistic economic models and to devising means for measuring the factors in these models more accurately. Progressive research in farm management methodology is almost non-existent, so far as the authors know. Too much time is spent collecting data and wishing that we had more, and too little time on deciding what data should be collected, how they should be collected and what should be done with them after they are collected. When dealing with complicated relationships involving many factors, there is all the more reason for using as efficient statistical tools as are available rather than less efficient tools. Suppose we took a sample survey of farms to find what factors affect the acceptance of new research findings by farmers in operating their farms. We set up a hypothesis and obtain the data necessary for testing the hypothesis. After analyzing the data appropriately, we find the factors being considered explain only a small proportion of the variability in the acceptance of new ideas or

that our sampling errors are too large to judge the regressions significant or both. Certainly we make no scientific progress if we say that we will ignore the tests of significance because there were some relationships, because our data are extremely variable and because we are almost certain that the factors being considered must be important. In addition, we might say that if we had data on more farms, then the variability in the data might cancel out. Instead we should reconsider our hypothesis and other possible hypotheses. Also, we should reexamine our method for obtaining the data and consider other methods. Data on more farms may merely further complicate the problem. Quantity of data is no substitute for quality.

9. Variables in farm management data are interrelated or have joint effects, say on income. Regression analysis which holds one independent variable constant while allowing variation in another but closely related independent variable deviates from reality and may result in erroneous conclusions.

The above argument is true, but any method of analysis may lead to erroneous conclusions if used incorrectly. Regressions that make no sense are not the fault of statistics in itself. In first place the hypotheses to be tested should be reasonable, as has been emphasized several times. In the second place only those statistical models, such as regression equations, that adequately express the hypotheses should be used. Here again, if the research worker is not adequately trained in statistics, he should consult a statistician before choosing a particular method or form of analysis.

STATE INDEX NUMBERS OF AGRICULTURAL PRICES*

WARREN C. WAITE
University of Minnesota

MOST of the states now have indexes of prices received by farmers for agricultural products computed by some agency in those states. The reasons for these indexes are fairly obvious. Agriculture varies greatly from area to area throughout the country, and an index which portrayed price changes in New York would be inaccurate for say Alabama and California. Moreover, the U. S. Department of Agriculture has provided readily accessible raw material in the form of prices and quantities. The task of construction has become fairly easy, one might almost say an index makers paradise. A recent request for information to the Land-Grant Colleges regarding their index number activity left only eleven states in which we have no record of work in this regard by either the land-grant college or the state statistician.

The majority of the state index number work has been done thus far by the land-grant colleges in the particular state. At least 29 states have at one time or another constructed index numbers for their state. Much of this work first appeared in the late 1920's or early 1930's. During the war depleted staffs resulted in several states dropping the computation of their index. Recently the state agricultural statisticians have come into the field, and in at least 8 states publish indexes where the colleges have not provided one. There is considerable merit to the notion that the state statisticians should prepare the state indexes of agricultural prices if they can be induced to do so. After all, a department of agricultural economics is simply combining the state statisticians material on prices and weights. The index also is a matter of continuous reporting which the state statistician might well provide.

The literature on index numbers is voluminous and authorities differ violently on many points. These controversies largely relate to the formula for the index. What seem to me major problems, in the sense of producing large differences between the indexes, are largely untouched. The latter are the problems of when and how to introduce a new commodity into the index, and what to do about

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changes in the quality of an item going under the same name. These problems become particularly acute in the preparation of indexes of the cost of things bought by farmers.

There are only two types of indexes that rank as of first importance in the field of agricultural prices. These are the weighted aggregate with base period weights $\Sigma P_1 Q_0 / \Sigma P_0 Q_0$ the Laspeyres index and the so-called "Fisher ideal"

$$\sqrt{\frac{\Sigma P_1 Q_0}{\Sigma P_0 Q_0} \times \frac{\Sigma P_1 Q_1}{\Sigma P_0 Q_1}}$$

The weighted average of relatives with base period values as weights

$$\frac{\frac{\Sigma P_1}{\Sigma P_0} (P_0 Q_0)}{\Sigma P_0 Q_0}$$

reduces to the Laspeyres formula when the same data are used in both indexes. Under certain circumstances this latter has advantages as when certain prices fluctuate closely with others and the value weights are known for the groups in the index. It is used, for example, by the Bureau of Labor Statistics in its Consumers' Price Index. Prices of clothing for children have been found to fluctuate closely with prices of clothing of adults of the same sex. Hence it is only necessary to price the clothing of adults, and weight this relative by total clothing expenditures by that sex. Fortunately we have adequate data and do not need to resort to the weighted average of relatives for these reasons.

The weighted aggregative has the advantage of ready understandability. It compares the value of a specified assortment of goods at one period of time with the value of an identical assortment at another period of time. This is a perfectly intelligible sort of a comparison. The only problem is whether there is any sense in making it. It seems axiomatic that an index number must measure magnitudes of the same thing at different times or places. Thus we may measure such things as the returns from our given wagon load of products at different periods of time, or the costs of a given quantity of satisfaction for an individual of unchanged tastes, or

the area required to produce a specified volume of agricultural commodities. One cannot compare, for example, the farm prices of Turkey and the United States, except for commodities which are similar, and even then extensive adjustments for the value of currency and so on would be necessary.

The case for the "ideal" formula is somewhat more complex but has merit when the problem is that of breaking values into the component elements of prices and quantities. Changes in the value of marketings from one period to another are due to changes in the quantities sold and to changes in the prices of goods sold. The ratio of values of a single commodity between two periods is equivalent to the product of the price ratio between the periods and the quantity ratio between the periods for that commodity. This holds true for each of the commodities in the group. Hence it is argued that the indexes of price and quantity should be such as to meet this requirement. Indexes constructed on the basis of the "ideal" formula will do this.

The difficulties in the construction of an index of the "ideal" form are much greater than those of the weighted aggregative with base year weights. The problem is essentially that of the weights. When a large number of commodities enter into the index, it becomes a laborious task to assemble the current weights. For some of the commodities there may be a lack of statistics from which to derive quantities which necessitate estimates by dubious if not questionable methods. When reliable statistics do become available, they are generally so late in appearing that they are not available for use until the time of maximum usefulness of the index is well past. If an index is to be kept current, some sort of a preliminary index must serve until the final weights become available. This will usually be the aggregative with base period weights.

Fortunately, the differences between the "ideal" and the weighted aggregate with base period weights is not likely to be large in most situations. Note that the first part of the "ideal" formula is the Laspeyres index itself. In order for a large difference to develop it would be necessary for the latter part of the formula to differ greatly from the first. Since the prices in both parts of the formula are identical, a very large change in quantities would have to occur. One may easily argue that the change would have to be so great as to raise questions of the validity of any index comparison between the periods. Some years ago we compared our

preliminary Minnesota Farm Price Index computed as a weighted aggregate with the final index computed as a Fisher ideal over a 312 month period. The differences in the indexes in the corresponding months averaged only 1.2 percent and in 62 percent of the months the differences were less than 1 percent. This was a rather severe test. The period was one of extreme fluctuations in the general price level. The quantity weights were characterized by pronounced shifts from the base period, and finally the month to month seasonal rates of marketing varied considerably. The small differences in these indexes led us to drop the final or Fisher "ideal" index as an unwarranted expenditure of effort.

The monthly state price indexes now computed seem to be entirely of the weighted aggregate type. The quantity weights usually represent an average of the sales of several years in the period of the 1920's although at least five states are using 1935-39 average quantities. The base period for the prices and hence the index is usually 1910 to 1914 with only six states basing their index on another period. Some states use the "ideal" formula on an annual basis for examining the influence which prices and quantities have exerted on the state farm sales.

Selection of a weighted aggregative type of index does not, however, exhaust the problems of a monthly price index. There remains a very annoying question of whether the weights for each month should be similar or whether they should vary according to estimated marketings at that particular time of the year. Logic seems to favor variable weights through the year. High prices for flax in midsummer mean little to the farmer since he has little to sell at that time. A change of ten cents in butterfat prices in May or June means much more than a similar change in November. It would thus appear that different monthly weights would be proper. This, however, raises difficulties with the important chronological month to month comparison. If we return to the basic notion that the index can measure only the difference in the same thing at different periods, the situation becomes clear. We compare the level of prices in the given month with the level of prices in the corresponding period in the base period for a specified quantity of goods. When we move to the next month we price not the same quantities but different ones, and our comparison can only properly be made with the corresponding month in the base period. This is likely to show up in practice in an embarrassing way when the indexes for

successive months are compared. The indexes will show erratic movements as the weights change between months, and these erratic movements are likely to increase with the passage of time from the base period. In Minnesota there are heavy fall marketings of crops. In periods when crop prices are low relative to other prices as compared with the base period, our corresponding month weighted index drops in the heavy crop marketing months even though actual prices have remained exactly the same as in the preceding months when crop marketings were smaller. If we are thinking of farm operations, prices are actually lower as our index indicates because the farmer is selling a larger quantity of the products which are relatively low in price. The ordinary man of on the street is, however, unable to understand a decline in an index when actual prices have remained unchanged, and is likely to suspect the index. There seems to be no way to resolve this difficulty but to compute another index which compares month to month changes. We have done this at Minnesota on the basis of the "ideal" formula, and when we compare prices with the preceding month we use this index for comparison. In the 48 months from August 1942 to July 1946 the month to month index changed on the average by 1.8 points while the changes in the index based on the corresponding months in the base period averaged 4.7 points, nearly three times as wide a fluctuation.

There seem to be only a few states in which the monthly indexes are computed on the basis of differing quantity weights by periods of the year. Nearly all use the entire period of years from which quantities are drawn.

A minor problem arises in the case of monthly price indexes in deriving the annual index. If the monthly weights are constant throughout the year, then a simple average of the index will give the same results as an annual index of the simple average prices of the commodities. If, however, weighed average annual prices of the individual commodities for the particular year are used in the annual index, and this seems more logical, then the annual index will differ somewhat from the simple average of the monthly indexes. The same difficulty arises with indexes using different monthly weights. Neither a simple average, nor an average with weights for the months in their proportion to the total annual sales will give the same results as annual weighted averages of individual commodities and annual marketings. There is evidently a lack of con-

sistency between the preparation of our monthly indexes and our annual figures.

The difficulties do not stop here. When one turns to the income, price and quantity data published annually by the Bureau of Agricultural Economics, one finds important differences between the monthly average prices given in Agricultural Prices and those used in the Income reports. This means that one ends up with two sets of annual indexes, one derived from the monthly data of prices received by farmers and another of that derived from the income reports. It would be desirable to have these series strictly comparable but this seems impossible at the moment.

The individual agricultural prices themselves have considerable seasonal variation. There is thus the question of whether to attempt to make any sort of a correction for this, or to permit it to remain in the index. Where the prices for the base period are averages for the entire base period, say 60 months, then, of course, any average seasonal movement there may be in the prices as a group appears in the index. Thus if prices in the various months in the base and given period are identical in fluctuation, the index constructed on this basis would show a seasonal variation in that year. Use of corresponding month average prices in the base and given period will, of course, remove the average base period seasonal price movement from the index.

The field of state indexes of agricultural prices received by farmers appears to be pretty adequately covered. There are, however, some other lines of agricultural price index work which warrant expansion. If state indexes are desirable for prices received by farmers because of the diversity of agriculture among the different states, this is even more true of state indexes of the costs of things bought by farmers. Little work has been done along this line, but it is badly needed. The problems here are much more complex than are involved in prices received and would gain by the experimentation and thought that would be given to them by workers undertaking them at a variety of places. The data necessary are not as well assembled as those for prices received, and much more can be done on a local basis in finding how various essential series may be assembled and the different elements in the index number handled. The early work in this field may well be done by the states themselves, and as the importance and desirable techniques are evolved, this phase of work might well pass to the state statisticians

or be supplemented by them as has been the case with the indexes of prices received. The results from the preparation of a number of state indexes might have a very salutary effect upon some of our ideas regarding parity prices and parity incomes. They would emphasize the diversity of conditions under which agriculture is carried on and lead to a better understanding of the agricultural situation.

Another direction in which agricultural indexes might profitably be extended is toward the changes in costs of certain of the important agricultural enterprises. The limitations of agricultural cost data and the difficulties of estimate and assembly are well known. If, however, we are going to know about the changing agricultural situation, cost indexes as well as prices received, indexes seem desirable. A considerable number of states compute indexes relative to the dairy enterprise. These are likely, however, to be in terms of the cost of the dairy ration, rather than a coverage of all costs in the dairy enterprise. This is likewise true of our hog-corn ratios, egg-feed ratios and so on. If we are going to know more about the fluctuations in costs, we must have more than this. A liaison between farm management workers and index number workers would be useful in developing this field.

It should be evident that although we have reached considerable standardization of procedure and fairly wide coverage in our state indexes of prices received by farmers, there are other directions in which price index number development may be pushed. Most of the indexes of whatever sort that are computed for the United States may also be prepared upon a state basis. This is in no sense simple duplication of efforts elsewhere since it serves to emphasize the variations in agriculture throughout the country. Most of the public, and perhaps even ourselves, are inclined to look at the national indexes and think of them as characterizing all of agriculture. The variations also deserve attention.

SOME STATISTICAL PROBLEMS INVOLVED IN TYPES OF FARM INCOME, BY SIZE*

NATHAN KOFFSKY

Bureau of Agricultural Economics

IN accepting this assignment to present some materials on the problems of preparing size distributions of farm income, I had hoped to report to you some of the fruits of the Enumerative Survey of Agriculture conducted last January, which dealt with the incomes and production expenditures of farm operators in 1946. But the mill of statistics grinds slowly and although some of the basic tabulations have been received, they have not yet been evaluated, except in a preliminary way. Consequently, this talk will discuss in very general terms the data that we shall have and what we expect to do with them.

A year ago, the Bureau of Agricultural Economics, in cooperation with other government agencies—the Office of Business Economics, the Bureau of Labor Statistics, the Bureau of the Census, and the Bureau of the Budget—initiated a project to construct the size distributions of incomes in the United States for the calendar years 1944 through 1946. The only previous Nation-wide income distributions available were those for 1935–36 from the Study of Consumer Purchases, and for 1941 and the first quarter of 1942 from the Survey of Spending and Saving in Wartime. The former study was based on 300,000 schedules, with 25,000 representing the farm sector, and the latter on only 3,100 schedules, of which 760 were rural-farm. The marked increases in incomes during and following World War II to levels never previously realized have brought new emphasis and pressures to find out how these record incomes were distributed.

For 3 years, the Bureau of the Census has surveyed the money incomes of families. These surveys were conducted in May 1946, and in April 1946 and 1947. They covered the incomes received during the calendar years 1944, 1945, and 1946. The size of the sample was increased from 6,700 households for 1944 to 8,700 for 1945 and to 60,000 for 1946. The size of the farm sample was 950, 1,500 and 4,200 respectively. For the year 1946, the survey was a cooperative undertaking, with the Bureau of Agricultural Economics con-

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 8, 1947.

ducting the income survey of farm-operator households as part of its January 1947 Enumerative Survey of Agriculture. These are the principal basic survey data with which the Interdepartmental Committee will deal in constructing size distributions for recent years, adjusted for those biases that can be accounted for. The division of labor within the Committee was based on the particular interest of the agency involved. The BAE is responsible for preparing the distributions which relate to the farm population, the BLS for nonfarm wage and salary earners, and the Office of Business Economics for the distributions that relate to nonfarm business entrepreneurs and to family units without employed members. This is a brief outline of the project.

Budgetary difficulties have made for some retrenchment with respect to the details that it was hoped could be presented. It is hoped that this will not be fatal. The Bureau of Agricultural Economics has particular interest in these size distributions for several reasons. (1) The shortcomings of the income-parity formula, now on the legislative books as a means of reflecting the well-being of the farm group relative to the nonfarm group, are well known. They have received considerable attention in the JOURNAL as well as elsewhere. It was thought that an analysis of size distribution of incomes of those engaged in farming compared with the distribution of incomes of nonfarm groups, in considerable detail and with attention to differences in price levels between groups, would lead to a better measure of relative well-being than is now at hand. (2) In analyzing the demand for farm products, along with a determination of the level of income, it is important to know how the income is distributed. Increments of income at different levels of the income size distribution are reflected in varying demands.

The Concept of Income

With these two points of interest, what kinds of income distributions are appropriate? What concepts of farm income should be adopted? Obviously, if the major use of the distributions is to compare the economic return to the farmer for his efforts with the returns to other population groups, income of the farm operator should include, insofar as is possible, the nonmoney income from the farm, such as the value of the foods furnished by the farm and the value of use of the farm dwelling. The income should also be adjusted for increases or decreases in the value of crop and live-

stock inventories due to physical changes in these inventories. On the other hand, if income size distributions are viewed as a factor affecting the demand for farm products, then the most useful concept of income would be represented by the money income and expenditures, in other words, the spendable income. The basic surveys previously mentioned have been carried through to obtain the money incomes of the farm population, primarily because of costs and time limitations. Consequently, we are in a better position to construct the distributions of money incomes than to construct the more comprehensive distributions required for intergroup comparisons.

However, income size distributions that represent nonmoney as well as cash incomes will not be abandoned. The 1945 Census of Agriculture has presented cross tabulations between the value of sales of farm products and the value of products produced for home consumption. The value of the occupancy of the farm dwelling can probably be roughly imputed from census data on valuation of farms and previous studies. In the January 1947 Survey, farm inventories of crops and livestock as of the beginning of 1947 were obtained so that a measure of inventory changes in the calendar year 1947 can be obtained, if it is possible to make a survey at the end of this year.

Although conceptually it appears clear that the nonmoney income from the farm should be included, it is not so clear as to how these items should be valued. The price level at which foods produced and consumed on the farm has been valued in previous studies varies from what the farmer receives for similar products to the retail price he has to pay. It makes for a considerably different size distribution depending on the choice. In 1941, nonmoneymoney income from food, valued at retail prices to the farmer, accounted for 20 percent of the total money and nonmoney income. And this figure represents the average. In the two lowest income groups it accounted for 55 and 38 percent of the total. If the farm-furnished foods were valued at the prices the farmer received, which is approximately at half the retail level, a considerable concentration in the lower income levels would occur. In comparing the incomes of farm and nonfarm groups, the effect of the several valuations that can be imputed for farm-furnished food can perhaps best be ruled out by means of the price deflator to be used in conjunction with the income data. A proper appraisal of the economic position of

farmers relative to nonfarm groups requires, in addition to the income comparison, an evaluation of what these incomes will buy. In making adjustment of the income to account for price differences, the problem of how farm-furnished foods are evaluated can be accounted for in the price index constructed to translate the income data into "real" terms. Some exploratory work in this direction has been done. It has been the practice in the BAE to value the farm-furnished foods at the prices received by farmers, the same price used to compute cash receipts from farm marketings.

Although the concept of what should be represented in a money income distribution of farmers that is to be combined with distributions for other groups is also quite well agreed upon, the actual practice in obtaining data, particularly as to farm expenditures, makes for considerable confusion in comparing income distributions from one period of time to another. The earlier studies of 1935-36 and 1941 included the net change in inventories; they deducted as farm expenses only that part of the automobile operating costs that the respondent thought could be charged to the operation of the farm; and they also deducted as an expense an estimated depreciation charge, in addition to repairs for machinery and equipment. The more recent surveys of the Bureau of the Census do not include inventory changes; nor do they include allowance for use of automobiles for nonproduction use or depreciation charges for machinery or farm buildings. All this makes for confusion for those hardy souls who may attempt to make comparisons with the earlier years. The 1935-36 distributions are presented on a total, non-money and money income basis whereas the 1941 distribution is presented only on a money income basis. This does not simplify comparisons from one period to another.

Why weren't the farm-income data for the Census Surveys obtained on a similar basis with the earlier years? It seems evident that the money-income concept used in the earlier studies was more desirable than the concept implicit in the more recent studies. But limitations of time and costs per schedule imposed on the Census Surveys did not allow for the additional questions that would be required to bring the studies into comparability. Nor are the three Census surveys completely comparable among themselves. For the 1944 Income Survey, only global questions were asked relative to total money receipts and net income after expenses. For 1945, the same questions were asked, but if the respondent was unable to

reply, a break-down of income and expenditure was provided for on the back of the questionnaire. (It is interesting that the non-reporting rate was somewhat higher for the latter survey.) For 1946, which was a cooperative undertaking by the BAE and the Bureau of the Census, a detailed listing of questions on farm income and farm expenditures was used. Thus, even though conceptually the treatment of money income was about the same for these 3 years, an appraisal of the year-to-year changes in the farm-income distribution is qualified by the types of questions asked and the amount of detail requested.

Definition of the Income Unit

Another conceptual problem of large magnitude relates to defining the income unit. In the earlier studies, Consumer Purchases and Spending and Saving in Wartime, the income unit represented a spending unit, that is, the family was defined as a group of persons living together, pooling incomes, and sharing major living expenses. But this definition did not turn out to be entirely satisfactory. There was some difficulty in ascertaining the degree of pooling incomes and sharing expenses. An unfortunate byproduct of the "spending-unit" concept was the breaking off from the family of many young persons who were earning relatively small amounts. Another concept, which should probably be called a "Saving Unit" was introduced in the Federal Reserve Board Surveys of Liquid Assets early this year and last year. If a person handled his finances separately from the rest of the family, a separate unit was determined. One byproduct of this definition was that some wives were separated statistically from their husbands and it was necessary to edit them back into one family.

In the more recent Census Surveys, the income unit has been defined to contain all persons living in the household who are related by blood, marriage, or adoption. This definition lessens the possibility of different interpretation as to what the income unit contains but is open to the criticism that it contains too much. The housing shortage is reflected by many doubled-up families. According to the definition based on blood, marriage, or adoption, most of these doubled-up families are integrated with the parental group. Yet the income and expenditures are not integrated.

What is the effect of shifting the income unit from a spending unit to a family-relationship unit? Some recent tabulations by the Fed-

eral Reserve Board based on both concepts yields the following for 1945: (1) The number of income units is reduced from 46 million spending units to 40 million families and single individuals; (2) the average income per unit is 15 percent greater for the family unit than for the spending unit; and (3) the concentration in the lower income classes is somewhat less for the family unit as the incomes of 6 million spending units are integrated in the family units. However, when a Lorenz type of distribution is considered, the proportion of aggregate income in each decile is practically unchanged.

Population experts in the Bureau of the Census have been thinking about a new approach for defining the unit so as to exclude from the primary family group, such secondary family groups as a son or daughter with spouse, or a parent-child combination. These would be considered as separate family groups. However, the Bureau of the Census is not considering an income survey next year and by the time a new one is indicated, the problem of doubled-up families may have been largely resolved. Therefore, the emphasis on this approach may be dissipated.

Biases in Constructing Farm Income Size Distributions

Up to this point, this discussion has been concerned with conceptual difficulties and how they may affect size distributions of income. Let us consider now the biases that develop in a survey of farm incomes. First, there is the bias of an imperfect sample. It is true that great strides have been made in sampling techniques, but the distance is still considerable from a level of efficiency whereby it can be assumed that the population is adequately represented. In the January 1947 Enumerative Survey of Agriculture, the sample was drawn up on the basis of the number of farms reported in the 1945 Census of Agriculture—5,860,000 farms. But, in expanding the sample, the estimate of total number of farms in the United States was 495,000 less than the expected number. Are we to assume that there were 8 percent fewer farms at the beginning of 1947 than 2 years previous? There is little other evidence of a significant change in the number of farms, but there is some indication that the smaller sized farms were underenumerated; practically all of the difference between the survey results and the Census can be accounted for by farms under 50 acres in size. This leads obviously to some adjustment in the lower sections of the size distribution of gross cash farm income.

Underenumeration of this sort is unfortunately common in sample surveys. In the 1944 Census survey of consumer incomes, only 4,575,000 families with farm income (including loss as well as profit) were identified, compared with an estimated 5,200,000 farm families. Some families have more than one farm operator, and this largely accounts for the difference of 660,000 from the 5,860,000 farms reported in the Census of Agriculture.

Another bias arises because of absences from the home at the time of survey or because of refusal to give information. In the January Survey, no information was obtained from approximately 15 percent of the farms in the sample. About half of these were not at home or were otherwise unavailable. Actual refusals to give any information amounted to about 8 percent of the noninterviews, or less than 2 percent of the total sample. Very little is known of these nonreporting farms, and we have practically no information as to where they are in the income scale. How are they to be distributed according to income levels? In some studies, it has been assumed that these nonreporting units were distributed in the same manner as were the units that reported. However, in dealing with income and expenditure data, such an assumption is unsafe. Nonreporting income units tend to be in the higher income brackets. These families take trips more frequently and have a higher absentee rate. Also, they are generally more reluctant to give information on incomes, as they fear reprisal for income-tax evasions. In the 1941 Study of Spending and Saving, information was obtained relative to the value of lands and buildings on farms where information was refused. Substitutions were made on this basis and the distribution was corrected. The bias of nonreporting is a serious problem, inasmuch as in most surveys that have been conducted, the nonreporting rate has been about 15 percent of the total sample.

Underreporting of income also tends to obscure the true size distribution of income. Primary survey data, even after adjustment for underenumeration and nonreporting, do not measure up to the totals that have been established through other sources. Consistently, total incomes, as reported in surveys, were at least and usually more than 10 percent below the aggregate estimated by the Department of Commerce. Although the aggregates computed are also subject to some error, for most components of income they appear to represent a reasonable checking point. Surveys do not turn up anywhere near a reasonable total for Dividends and In-

terest. In general, wages and salaries are well reported in total. The wage-earner, if regularly employed, knows fairly well his earnings over a year. There is little reluctance to hold back this information as taxes have already been deducted. In the case of farm income, underreporting of income becomes acute. First, it is more difficult to arrive at a correct income figure. Some sales of farm products are likely to be forgotten. Production expenditures are probably better remembered, but the dividing line between some production and living expenditures is vague. Thus, the underreporting of gross income from farming is probably less than the underreporting of net income. The total value of sales obtained in the 1945 Census of Agriculture for the year 1944 was approximately 20 percent less than the total estimated by the Bureau of Agricultural Economics. An estimate of the net cash income from farming obtained in the 1944 Survey of Income, after adjustment for underenumeration of farm families, is close to 30 percent below the comparable BAE estimate.

Some of the principal aids for adjusting income distributions are not available or are relatively meaningless for the farm group. Income-tax data which are valuable for adjusting the upper end of the income distributions are not particularly pertinent to the farm group. The legal concept of income from farming is vague, and the inability and reluctance to check farm incomes make income-tax data of little use when applied to farmers. There is some evidence that as late as 1943, less than half the farm families who should have filed returns did file. Also, farmers are not covered under the Social Security System, which provides some assistance in adjusting income distributions relating to wage earners.

Experience with Size Distribution of Gross Farm Income

Probably the most familiar size distribution of income relating to the farm group is that of the value of products sold, traded, or used, presented in the Census of Agriculture every 5 years. Even though the Census attempts to obtain full coverage, there may be a problem of underenumeration, as differences in the enumerators' interpretation of what is a farm affects the number of farms recorded. But such underenumeration is of minor importance when contrasted with underenumeration which results from an inadequate sample. Nor is the problem of nonreporting significant. In the 1945 Census of Agriculture, information relative to the value of

products sold, traded, or used was not obtained from less than two-tenths of one percent of all farms.

However, underreporting of the value of products is undoubtedly significant. For the year 1944, the total value of products sold, as reported in the Census, was approximately 20 percent below the BAE estimate of cash income from farm marketings. A comparison of the Census of Agriculture data on value of products sold for 1944 with data on gross cash farm income reported in the Census Survey of Consumer Income for the same year permits an appraisal of the survey techniques employed. After expanding the farm sample, 4,970,000 persons were identified as farm operators who received some gross cash farm income, compared with 5,328,000 farms reporting value of products sold. Thus, the underenumeration as compared with the Census was about 350,000 farm operators. Apparently, the underenumeration was largely concentrated in the lowest income group, and probably reflected the difficulty of enumerators in identifying small-sized farms. After adjusting for underenumeration and for the relatively small nonreporting incidence⁶ of only 3 percent of all farms, the size distributions of gross cash income and the aggregates of income are remarkably close together, considering that the farm sample was based on only 950 farm households. However, the underreporting of income of approximately 20 percent remains and the income unaccounted for has not yet been assigned to appropriate income size groups. Out of the survey conducted in January, we plan to get tabulations of the discrepancies in income for individual farm products. With this information, we may be able to close the income gap.

As has been previously mentioned, the sample used in the January 1947 Enumerative Survey of Agriculture failed to identify almost half a million farms. As yet, an estimate of the aggregate income represented in this survey is not available. Nor can we be confident that the considerably larger sample employed will yield better results than the 1944 Consumer Income Survey. Our experience is too limited to permit generalizations. But we have an additional clue as to the reasonableness of a gross income distribution. In examining the distributions of the value of products, a useful consistency is found. Changes in distributions from one census period to another generally are proportionate through most of the income scale. This is reasonable, as changes in yields and prices are generally effective on all farms, large and small, to approxi-

mately the same degree. So it can be anticipated that the distributions of gross income will be more accurate than will be those of net income. (1) Aggregate estimates of production expenditures against which to check are less satisfactory, (2) the additional factor of production expenditures, with its attendant biases, is being introduced.

It is a matter of regret that at this time the problems that arise in constructing income size distributions cannot be discussed further but perhaps this can serve as an introduction to the forthcoming size distributions. When these distributions are constructed, the problems and shortcomings, as well as the steps taken to solve them, will be listed.

SAMPLING METHODS IN USE IN SOME OF THE FARM MANAGEMENT RESEARCH AT CORNELL*

L. C. CUNNINGHAM AND S. W. WARREN

Cornell University

FROM the beginning, cost accounts and surveys have been the principal research methods in use in farm management at Cornell. Both methods have been used for at least four decades. This paper is concerned largely with the sampling methods in the surveys, but first a word will be said about cost accounts.

Cost Accounts

The main objective of cost accounts is to obtain detailed information about practically all phases of some individual farms. Perhaps the most important data are those relating to the relative profitableness of the different crops and classes of livestock in these businesses. Consequently, sampling is subjective, largely a matter of getting dirt farmers who will cooperate in keeping detailed cost accounts. The results are not representative of average farm conditions. These records are used to make case studies of individual farms, and at best to represent only the better-than-average farms.

Surveys

The objective of the farm management surveys is chiefly to determine economic relationships in farming. Block samples are usually used. Selection of the blocks is subjective.

In reporting these studies, the areas surveyed are described in considerable detail. This is done to provide the proper setting for the analytical phase of the work. The inference in such procedure is that the description applies only to that area but that the relationships found may well apply under similar conditions elsewhere.

The relationships established by such block sampling procedure have stood the tests of time and experience. Repeated studies of this type for many years and in many areas are not likely to lead to wrong conclusions. It is probable that scatter sampling would have led to about the same conclusions as the block sampling, but at considerable more cost for the field work and at considerable sacrifice in public relations.

We agree with Wilcox that objective sampling of farms is essen-

* A paper presented at a roundtable at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 10, 1947.

tial for studies of efficiency relationships.¹ We disagree with his statement that "It is obvious that one cannot be sure that a few geographic blocks selected by the investigator will be such (unbiased) a sample." If as Wilcox states "Well trained and experienced research men may be able to analyze problem situations in nonquantitative terms and arrive at valid and exceeding useful conclusions even though they have no statistical proof of their conclusions," then these same well trained and experienced research men should certainly have sufficient knowledge of their state to select an unbiased block sample.

As an example of the selection of such a block sample of farms, in a recent study an area of the following characteristics was essential to meet the objectives of the project:² "(1) type of farming predominantly dairy; (2) land with natural productivity representative of the limestone soils of Central New York; and (3) location with respect to cities such that marketing, farm labor, and real estate values were not unduly affected." An area in Oneida County which met these qualifications was selected.

In another case—a study of type of farming adjustments in a hay and grain area—the first step was to delineate the area which had similar adjustment problems. This was done through the use of secondary data and reconnaissance field work. This preliminary work made it possible to select for intensive study a small block which was representative of the larger area.

Formerly all farms of all types within the block were enumerated for detailed study. For example, in one county in 1937, detailed records were enumerated on 253 fluid milk farms, 129 other dairy farms, 40 poultry farms, and 31 miscellaneous type farms in the area. Some kind of record of these farms was necessary to describe the area, but when it came to a study of relationships some of these variables, like type of farming, had to be eliminated. The detailed enumeration of the miscellaneous types of farms was very costly in relation to the usefulness of the data obtained.

Within most rural communities, there is an increasing intermingling of rural residences, part-time farms, family-commercial farms of various types, and large-scale farms. The enumeration of all farms within a block results in a conglomerate group of records. In our dairy studies in recent years, block samples were used, but only the farms meeting certain qualifications were enumerated,

¹ Wilcox, W. W., *Research in Economics of Farm Production*, this JOURNAL, August, 1947.

² L. C. Cunningham, and S. W. Warren, *Farm Management in Oneida County, 1942-43*, Cornell University Agricultural Experiment Station, Bulletin 830.

As was so well brought out by Wilcox,³ there is continuing need for up-to-date farm management data. Furthermore, we feel the established relationships need to be expressed in more quantitative terms; the shapes of the curves of relationship need to be determined more accurately; the more important variables such as land quality and size need to be eliminated so as to study more carefully some of the minor factors causing variation in farm production efficiency. Meanwhile, the demands are increasing (or are being more widely recognized) for descriptive data of wider application than those from block samples. For example, more data are needed concerning physical inputs to produce milk under different land conditions within a state or in different regions of the country.

Our block sampling method in farm management surveys in New York appears to have led to sound conclusions with respect to the analytical work. The data have been objective and unbiased. They covered nearly the whole range of farmer experience. They have lacked somewhat in making it possible to arrive at quantitative determinations of relationships. This latter limitation has been more a lack of numbers of records at the extremes of experience than of method. The method of sampling has fulfilled the major purpose of the studies.

To meet the increased demands for adequate descriptive data, secondary data are being drawn upon even more than formerly because of their increased availability. Also, the enumerative survey or sample census will be used to obtain some farm management data. As more and more data are obtained by the use of the random sample of records scattered over wide areas, experience will show to what extent the same data can be used for descriptive purposes and for analytical studies of economic relationships in farming.

³ Wilcox, W. W., *Research in Economics of Farm Production*, this JOURNAL, August, 1947.

SAMPLING PROCEDURES USED IN STUDY OF HAYMAKING METHODS*

S. A. ENGINE

University of Minnesota

I WILL describe the sampling procedures used in a study of haymaking methods. Work on this project has been carried on for three years. The specific objectives and the sampling procedures have changed from year to year.

One objective the first year (1945) was to determine labor requirements and costs for bringing hay from the windrow to storage by different methods. We were primarily interested in comparisons among loaders, field balers, field choppers, and buckrakes. A second objective, carried out in cooperation with the B.A.E., was to obtain data on labor requirements and related information for loaders which would be combined with similar data from other states to prepare a national summary of haymaking.

The data were obtained by survey. A dairy area with a fairly high proportion of alfalfa hay was selected for study. The interviewers located farmers operating field balers, field choppers, or buckrakes. The names were obtained from county agents, machinery dealers, farmers, and any other feasible source. Since the number of farmers using these machines was quite small, all of them were contacted and interviews obtained, if possible. Each interview with a farmer using one of the three machines mentioned was matched with an interview with a farmer using a loader. The first farmer to the west was selected. By this means we hoped to obtain data for loaders from farmers operating under conditions similar to those for farmers using the other three machines. We also hoped that the data for loaders would be sufficiently random to provide the basis for a reasonable estimate of labor requirements for the area. Usable records were obtained from 69 farmers—36 using loaders, 33 using other methods.

The objective for the second year was again to compare labor requirements and costs among different methods of haymaking. We wished to check the results of the first year's study. We worked in the area surrounding the counties in which we worked the previous year. None of the farmers interviewed in 1945 were contacted

* A paper presented at a round table at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 10, 1947.

again in 1946. We were again interested in the same four methods we studied in 1945.

Since we were interested primarily in comparing the different methods, it seemed desirable to secure an approximately equal number of observations for each method. That should give maximum information with a limited amount of money and time. Few buckrakes are used in the area studied, so it seemed impractical to secure a number of cases equal to the other methods.

We again located farmers using field balers or field choppers, and interviewed them. If we located and interviewed a man operating a baler in a community, we searched out the nearest farmer using a field chopper. Then we interviewed a man using a loader in the same community. We set no specific rule as the basis for selecting the men using loaders. By obtaining records for the three methods within one community we hoped to equalize types of farming and types of hay crops. We secured records for farmers using buckrakes whenever we could find one, making no effort to match it with records for the other methods. We secured 79 usable records—29 for loaders, 21 for field balers, 21 for field choppers, and 8 for buckrakes.

The results obtained in the two years were consistent with each other and with studies conducted in other states. There was, therefore, no need to carry this phase of the study further. During the third year, (1947) our objective was to determine some of the reasons for the wide variations in time expenditures among farmers using the same method, and to assemble ideas for reducing time expenditures. We selected the use of loaders as the basis for study. Since that is the method in most common use, it was easier to find an adequate number of cases without excessive travel. Those farmers have been using loaders for many years, and have standardized their operations.

The information was obtained by direct observation while the farmer was putting up hay. The data included detailed records of time spent, weights of loads, dimensions of fields, size of windrows, distance to field, dimensions of hay storage place, description of equipment and crew, and notes on any occurrences or situations that might influence labor efficiency. We usually spent an afternoon with a farmer, obtaining data for two to six loads. The analysis will be made by a detailed study of each case, and by applying the time data to standardized fields, yields, and conditions.

The area selected for study was adjacent to the experiment station, with no farmer located more than 30 miles away. Expediency played a large part in making this choice—it enabled us to work in our offices during the forenoons, and on rainy days. The types of hay, acreages of hay, types of barns, and types of equipment are reasonably similar to those over a fairly large part of the state.

We selected our farms by driving down the road looking for a farmer using a loader, and then asking permission to obtain our information. At first we stopped at any farm where a loader was in use. Later we searched for farmers using different sizes of crews or types of equipment or storing their hay in different types of barns. Unfortunately we had to limit our observations primarily to farmers pulling their wagons with tractors; it was difficult to weigh the horse drawn wagons. Judging by other observations on haymaking methods we feel we have data on a reasonably wide range of types of equipment and other conditions. The number of cases obtained was somewhat small, however,—only twelve. As an interesting sidelight, no farmer refused us permission to spend the afternoon with him.

I have tried to outline our sampling procedures briefly, but with enough detail to provide a basis for discussion. I wish to add a few ideas concerning the application of sampling to this project. I hope they will add fuel to our discussion.

It seems to me that we sometimes confuse our issues by applying the term “sampling” to studies such as this. As I listen to discussions or read articles about “sampling” they deal largely with problems of the census type; that is, the enumerator wishes to count the number of cases falling within certain categories. There are many valuable projects of this type. The second objective for the first year of the study I described requires an enumeration of this type.

The study of haymaking methods is of a different type, however. We were interested primarily in obtaining information that would help the farmer to select and adapt to his conditions the most satisfactory method of haymaking. The farmer wants to know the costs, rates of performance, and similar information for the different methods. He wants to know how these apply to his farm, but he is not concerned with the number of other farms to which they will apply. The research worker, of course, wants to know that his findings will apply to a sufficient number of farms to justify study,

but the estimate of the number of cases can be rough. For many studies the farm management worker carries in his mind sufficient information to formulate this judgement without further study.

It seems to me that for problems such as the one I have presented here, the student of experimental design may be of greater assistance than the student of sampling, although both may be needed to provide the final solution. In these problems we are attempting to determine relationships among variables. We determine these relationships by studying a series of cases, each falling at some point along our scale of variables. In order that our conclusions will be valid, we must be certain that our cases are comparable. If we select our cases correctly we may be able to measure several variables with a limited number of cases, as the agronomist does with his carefully designed field trials. Our first big problem is then to define the types of cases we wish to study; that is, define the exact universe we are studying. The next big step is to find the cases that fulfill our conditions; that may be more a problem of searching than of sampling.

In making these statements I recognize that I am wide open to criticism. If it stimulates discussion, I shall be satisfied. After all, there is merit in the slogan, "Remember the turtle, he gets nowhere unless he sticks his neck out."

ECONOMIC EVALUATION OF SOIL AND WATER CONSERVATION MEASURES AND PROGRAMS*

M. M. REGAN AND E. C. WEITZELL

Bureau of Agricultural Economics¹

DURING recent years there has been a growing recognition of the responsibility that the public should exercise in behalf of soil and water conservation. Realization of the consequences of wind and water erosion, frequency of damaging floods, and the unfolding possibilities for large-scale river-basin development have contributed to the general acceptance of public responsibility for improvement and development of land resources. Accompanying this growing interest, the need for economic evaluation as a basis for determining the appropriate scope and the most productive methods of conservation and land development gives rise to some important analytical problems. Several large development programs carry statutory and administrative provisions for benefit-cost evaluations in determining the economic justification for project investments. Likewise, the application of soil- and water-conservation measures on farm lands must be guided by an adequate knowledge of the economic effects that may accrue to the business of farming.

Economic evaluation of public and private investments in the conservation and development of land is the process by which all costs and all benefits, to whomsoever they may accrue, are systematically and objectively compared to determine whether the benefits which are likely to result from the application of various measures and practices, at varying degrees of intensity and under different physical circumstances, will be sufficient to justify the costs thereof.

The complicity of the job is immediately apparent. "All costs and all benefits, to whomsoever they may accrue," cover a wide territory. The range is from tangible cash costs and returns to remote and intangible effects incident to both public and private economic and social activity. The amenities enjoyed by individuals and the greater national security that may result from well-con-

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¹ Agricultural Economists, Bureau of Agricultural Economics, U. S. Department of Agriculture. The authors are solely responsible for the contents of this paper, and no parts thereof should be construed as necessarily representing Department policy.

served farm lands are difficult to evaluate in terms of the dollar denominator. The extended effects that an improvement program in one region may have on the economy of another region, and the benefits that may accrue a hundred years hence are difficult to trace and appraise. Benefits and costs which accrue over time must be converted to comparable current or annual values. The comparison of public and private costs and benefits reaches into the relatively unexplored field of social values. Even the comparatively simple task of measuring farm costs and returns incident to conservation of soil and water is far from a perfected procedure. In addition, there is constant need to consider the incremental or marginal relationships between benefits and costs in ascertaining the most productive combinations of measures and practices and the intensity to which they should be applied.

In general there are at least two reasons why techniques and procedures for making economic evaluations of this type have not been more adequately developed. *First*, adequate "physical" data have not been provided as the grist for economic analyses. This has been due to the time required for observation and experimentation, and the lack of cooperation between economists and physical scientists in providing the essential techniques for collecting and adapting the basic data that are essential to economic evaluations. *Second*, the immaturity of the whole field of social values has restricted the exploration of relationships between private and public values, and the conditions under which numerous extended effects, which are often claimed, could actually arise. The source and incidence of all effects are integral parts of the evaluation process. Inadequacy of basic data and of acceptable standards of measurement is the principal limitation that must be overcome before benefit-cost analyses can be completely dependable.

Function of Economic Evaluation

The principal functions of economic evaluation are: (1) to determine the economic feasibility of any given program, from both the public and private viewpoint; (2) to supply the basis for designing and planning the most productive combination of measures and practices, and to determine the most profitable intensity to which a program can be applied; and (3) to provide the basis for apportioning the costs of conservation between public and private interests.

In terms of national planning, objective economic evaluations of alternative improvement and development opportunities are needed as a basis for selecting the most urgent and productive types of public investment. Public funds, which are usually limited during any specific period, should be expended for those measures and programs that will produce the greatest net return. Priorities for the accomplishment of various types of conservation should be established on this basis. Certainly, it is clear that the various investment possibilities are likely to return varying degrees of benefit, whether public or private. Consequently, the choice of programs and the design of specific projects should be made on the basis of comparative economic productivity.

Farmers obviously need economic evaluations of proposed conservation measures as a basis for selecting the measures and types of programs that represent profitable investments for them. They need to know not only the character of program to apply, but the most profitable intensity with which to apply it. Moreover, to the extent that government assumes the responsibility for determining the character of a conservation program to be applied, farmers should be assisted in adapting the program to fulfill both public and private needs.

Another significant function of benefit-cost evaluation is that of providing a basis for cost allocations. When single investments are to serve two or more functions of a program, economic analyses must provide the basis for allocating the total costs among the several functions. This is of particular significance when one of the associated benefits is to be self-supporting, while another is to be subsidized as a public service. The apportionment of soil and water conservation costs, between ranchers and farmers on the one hand and the public on the other, is a practical problem of current interest.

From the farm-planning viewpoint, individual and typical farm or unit evaluations are sufficient. That is, the value of conservation to a particular farm can be ascertained by appraising the costs and benefits incident to the application of specific measures or combinations thereof. But the evaluation of soil and water conservation as a basis for guiding legislation and for allocating joint program costs between public and private interests demands regional or possibly national estimates. Thus, the scope of the evaluation job varies from the more or less tangible considerations that are involved in

farm-business analyses to the full range of social and private effects that constitute the public-welfare aspects of soil and water conservation on an area or national basis.

It may not be possible to develop techniques and procedures that will measure accurately *all* the cost-benefit effects of a land-improvement and conservation program. Some of the effects may not be commensurable in terms of any objective or standard unit of value that can be conceived. Numerous qualitative appraisals may be unavoidably a part of the evaluation procedure when it is desirable to consider the full range of tangible and intangible effects. Nevertheless, the fact remains that these effects should be evaluated. Thus, it is imperative that the best possible methods be devised for appraising both the quantitative and qualitative character of the benefits and costs that may be associated with investments in the conservation of soil and water.

Identification of Benefits and Costs

Going back to the definition of economic evaluation, as applied to conservation, it may be recalled that it is a process by which all costs and all benefits are objectively compared. These costs and benefits might be called economic effects, since the intention is to include all effects of the application of investment and other expenditures, and the resulting impacts from all the economic activity that is set in motion. These effects, in turn, become the attributes of conservation that we wish to measure and evaluate.

Before it is possible to measure effects, the practice or program in question must be accurately identified and delineated. This raises the question: What is soil and water conservation? Briefly, it may be assumed that, from the physical standpoint, soil and water conservation is an engineering, agronomic, cultural, or vegetative measure or practice, or a combination of these that is designed especially to prevent erosion, to maintain fertility at a desirable level over a long period and to retain the moisture content of soils.² Gully-control dams, strip-cropping, tree planting, and diversion terraces are typical examples of individual practices and measures. In application, these and others in combination constitute a soil and water conservation program. Thus, it is necessary to differ-

² For a definition of conservation in economic terms, the additional phrase, "to the extent that can be economically justified," should be added. This determination is the object of economic evaluation.

entiate between soil and water conservation and the many aspects of land or farm management that are not designed to produce the indicated attributes of conservation.

In connection with evaluation, the question has frequently arisen as to whether individual practices or the program as a whole should be the basis for evaluation. It should be clear that in order to plan the most productive program it is essential to know the effect of the several constituent parts,³ both singly and in various combinations. The inclusion in a program of measures which do not contribute to the desired aim sufficiently to justify the costs thereof is an obvious waste.⁴ After the program has been planned on this basis, for any set of circumstances, it then may be appraised as a whole.⁵

Too avid adherence to the "program" idea leads to the impractical application of somebody's ideal combination of measures and practices for controlling erosion. It should not be necessary to seek a place for any part of a program. Soil conservation on each farm should consist of those measures and practices that are specifically needed rather than a fixed set of things that must be done. Therefore, the planning of each farm unit involves the application of evaluation to determine the more productive combination of measures in each instance. The economy of production, in addition to the physical need for the conservation of soil and water, must be the guide.

Two general types of effects or attributes may result from soil and water conservation on farm lands: (a) *direct*, and (b) *indirect or extended*. The direct costs of soil and water conservation range from initial investment and cost of operation and maintenance, which are more or less tangible, through the less tangible time-preference costs, including interest and discounts for risk and uncertainty. Under certain conditions changes in land use in behalf of erosion control may involve reductions in current incomes. These reductions may represent costs to farm families who have no possibilities for alternative employment. Although long-term incomes might be greater as a result of the change, the postponed incomes may be

³ National Resources Planning Board, *National Resources Development*, Report for 1942, p. 86.

⁴ See E. L. Grant, *Principles of Engineering Economy*, Ronald Press, 1938, p. 146.

⁵ For a different emphasis see Bernard Frank and E. N. Munns, "Watershed Flood Control: Performance and Possibilities," *Journal of Forestry*, Vol. 43, No. 4, April 1945, pp. 245-47.

beyond the scope of interest of the farm families who currently depend on the land for a livelihood.

Direct benefits also vary widely in tangibility. They include such tangible items as increases in crop yields, reductions in sedimentation, reductions in water run-off, and flood damages. Among the more intangible direct benefits are the amenities that people may enjoy as a result of living in a community of well-conserved farm and forest lands, compared to one which is being destroyed by erosion, floods, and exploitation. The relative safety and freedom from risk that may be the result of less severe floods and crop damage may be of considerable significance in some localities. The guarantee of continuous supplies of food and fiber provides a basis for important consumer benefits over a period of time.

Indirect or extended effects of soil and water conservation often may be rather nebulous and intangible. Yet certain benefits of this character frequently have been given substantial weight in benefit-cost comparisons. Indirect *costs* usually have been given less emphasis.

Among the indirect effects that might be claimed are: (a) contributions to national security; (b) stability of earnings to processors, distributors, and others who depend on farm production from certain areas; (c) greater human welfare resulting from a well-nourished population; (d) stabilized financial support of essential public services; (e) lower value of resources expended for conservation compared to possible higher values for other uses; (f) higher consumer prices for some commodities, the production of which is reduced in behalf of conservation (and the converse in instances where production is expanded); and (g) higher costs to some producers as a result of increases in demand for materials and supplies that are used in establishing widespread soil and water conservation. It is obvious that certain of these effects may be offset by others. Still others may not be valid, depending on the circumstances which prevail at any particular time.

The question that arises now is, how can this maze of tangible and intangible effects be reduced to a common denominator, assuming that all those mentioned and many more actually are claimable as costs and benefits? The first step in making benefit-cost comparisons is to trace the initial or direct effects of the conservation of soil and water to their final incidence. Values to recipients can be established only in relation to the incidence of the effects

(i.e., who bears the costs and who receives the benefits) and the circumstances which characterize the incidence. Then, it may be possible to trace and evaluate certain of the indirect effects.

As a basis for tracing and evaluating these various effects, they may be considered from two fundamental viewpoints: (1) private, and (2) public. Depending on the viewpoint selected, a particular effect may be a benefit or a cost, or it may not be considered in the appraisal at all. This possible divergence in the recognized scope and importance of possible effects gives rise to much of the variation in the prevailing concepts of the need and justification for conservation. These concepts will be useful in benefit-cost evaluations as a means of prescribing the scope of any particular evaluation, as a framework within which the final incidence of the several effects may be traced, and as a basis for determining the values that may be attached to the different effects.

The *private* viewpoint is frequently referred to as the entrepreneurial or firm interest; but in this setting the scope of the concept is broadened to include both producer and consumer effects. Thus any effect, whether tangible or intangible, would be considered as the individual businessman or consumer would view it. In terms of the farmer or other businessman, an effect would be considered a benefit if it were appropriable as annual income or capital value; and a cost would appear either as increased outlays or as reductions in these items. For the consumer or the individual, conservation may affect levels of living through its influence on the current and future supply of general and particular agricultural commodities.

The significance of the private viewpoint, insofar as evaluation is concerned, is that any effect would be considered only in terms of a particular individual firm or person. Possible counteracting effects accruing to other individual or group interests would be ignored. Thus a certain individual or firm may have either a limited interest or none at all in some types of conservation where the benefits would accrue in the distant future or where they would accrue chiefly to others. In like fashion, the failure to conserve (exploitation) may be a net gain to a specific individual operator because he is not required to bear all the associated costs. Future generations may bear the costs in the form of reduced consumption, or the neighboring farm may suffer the damages of excessive runoff and erosion.

The *public* viewpoint extends beyond the scope of individual

private interests, and consists of two phases: (a) aggregate private, and (b) social interests. The separation of private and public interests may not always be clear-cut, particularly if an attempt is made to summate the private effects of conservation for any particular area or group. Any attempt to move away from the individual and to encompass more than the private entrepreneur would recognize, leads toward the public viewpoint; but the transfer to the full public viewpoint may not be complete. For example, all the benefits and costs for a certain area might be accounted for, and the public viewpoint would characterize the approach within the limited area. However, unless the effects on other areas and for the Nation as a whole are included in the evaluation, the full public viewpoint will not be realized.⁶

The first step in meeting the requirements of the public viewpoint is to *aggregate* the private effects.⁷ This entails a summation of all entrepreneurial and individual (private) effects, which provide a result that might be termed the net private effect. Thus, the beneficial effects accruing to one individual or firm must be offset by the detrimental (cost) effects accruing to others in the same and different localities. For example, suppose that one type of farming is expanded greatly in a certain area and that the resulting farm incomes are substantially enhanced. At the same time, however, farm incomes in a competing area are forced down by the increase in commodity supplies. The aggregate private effect is the net gain or loss, or the two may cancel, depending on the elasticity of demand for the commodities in question. A similar aggregate accounting would also be made for the tangible and intangible consumer effects.

The *social* phase⁸ of the public viewpoint would allow for numerous effects that are not likely to be reflected directly in the judgments and reactions of individuals and firms. For example, the value of producer and consumer benefits that are expected to accrue in the distant future would not be reflected in current market

⁶ International considerations may assume substantial significance as the World of Nations develops.

⁷ The concept of "aggregate private effects" is essentially the same as Pigou's "marginal social net product," except that Pigou apparently assumes this to be the total public effect. (See A. C. Pigou, *The Economics of Welfare*, Macmillan, 1938, Chapter II, p. 131.)

⁸ For a comprehensive discussion of society's interest, see Arthur C. Bunce, *Economics of Soil Conservation*, Iowa State College Press, 1942, particularly Chapter 8, pp. 97-128.

considerations. The future value of exhaustible and irreplaceable resources and the general benefits that accrue to people regardless of their economic status are difficult to interpret in terms of market criteria. Likewise, the value of a high level of conservation as an item in national security may not be a part of any individual's economic considerations, but the social value of this factor may be extremely significant.

Although these viewpoints are not completely independent and mutually exclusive, they should aid in understanding the problem of tracing and identifying the various effects which result from the application of soil conservation measures and programs. Various effects may assume widely different values, depending on whether the final incidence is limited or general and when the particular effects are expected to accrue. It should be observed that the private and public viewpoints here described are not additive as separate segments of the evaluation process. Final evaluations should be based on one selected viewpoint, which may be characterized as primarily private, or primarily public. The distinction is that the public viewpoint is more inclusive in that an attempt is made to cover all benefits and costs to whomsoever they may accrue.

Evaluation Principles and Problems

The primary aim in developing evaluation procedures should be to design ways and means of obtaining an accurate picture of the effects that reasonably may be attributed to the measures and programs under consideration. Basic to such determinations is the application of the "with and without" approach. Applied to conservation, this involves an attempt to measure the difference between future benefit and cost streams, with and without the application of given practices and programs.

The typical cost pattern of a soil and water conservation program reflects comparatively large initial capital costs, with maintenance and replacement costs accruing annually and periodically after installation has been completed. Benefits, on the other hand, may be limited during the early stages, but they may then be expected to accrue more or less regularly over an infinite period of time. It should be noted that infinite returns require adequate maintenance of the several measures and practices.

From the entrepreneurial (farmers') point of view, the principal benefits from soil and water conservation will accrue as "increases"

in agricultural and forest production. This pattern of increased production may take the form of maintaining the current level of productivity in comparison with what otherwise would be a declining trend. If elements of rehabilitation are involved in the program, the pattern of accrual may be one of gradual increase from any given point and stabilization of a higher yield level for an infinite period. Or if conservation involves a shift to a less intensive land use, the benefit accrual pattern may be one of sudden reduction in current productivity to a point where productivity can be stabilized. In any event, the assumption is that the level of productivity under conservation will be higher than would have been the case otherwise. The object of measurement and evaluation is to determine "how much."

The point at which the effects of conservation should be measured has been subjected to considerable controversy. Some analysts have felt that the results of conservation must be measured as *farm* or *labor* income in order to include the "full impact of the program." In other words, the job would be one of gathering basic data by cost account routes or periodic surveys that would indicate the actual results of conservation as applied to "going concern" farms by measuring the difference between total farm expenses and gross income. The trouble with this approach is that so many uncontrolled factors influence farm costs and expenses that it is impossible to isolate the effects of conservation.⁹ On the other hand, there is the possibility of measuring the increases in farm and forest production in physical units to be interpreted in terms of dollars, and in terms of farm income through the budgeting process.

In applying the *with* and *without* approach, the effects of conservation on farm and forest lands may be measured by establishing experimental check-plot or field comparisons. The aim would be to have comparable areas of treated and untreated lands, under controlled management, from which the productivity could be measured. This means that the first step—the job of gathering the initial data—is properly a task for physical scientists, with economists indicating the form of data necessary for subsequent

⁹ For more complete discussion of various methods of collecting basic data see E. C. Weitzell, "Evaluating Soil Conservation," this JOURNAL, Vol. 29, No. 2, May 1943, pp. 475-94. Also Neil W. Johnson, *Analysis of the Present Program of Research in the Economics of Soil Conservation, and Suggestions for Its Improvement*, Bur. Agr. Econ., March 1943.

economic interpretation. Then it will be the job of the economists to evaluate the physical data in terms of net income. This may be done on an areal ("resource areas" for example) basis, assuming a certain distribution of specific landuse patterns; or the results may be budgeted for average or typical farms as *farm income*. In either case, there appears to be no reason why reasonably accurate estimates of areal effects cannot be made. The calculations would be free from the numerous uncontrolled factors which have no direct relation to conservation.

It should be observed that considerable research in ascertaining the physical effects of conservation has been done by agronomists, soil technicians, foresters, and others. Most of these data, however, have not been translated into economic terms; and some may not be adapted to this use. Closer cooperation between economists and physical scientists should make the product of each more useful.

As an alternative or in addition to the experimental plot and field procedure, it may be possible to select comparable farm units that could be operated under controlled conditions as the basis for making the with and without benefit-cost appraisals. Whether enough of such farms could be selected to make the results useful, as a basis for areal estimates, is a major question. In order to do this it would be necessary to select them as representative of "resource areas," or some other more or less uniform area to which the data could be projected.

In addition to the individual enterprise or farm-business considerations, the effects of a particular conservation program on other private interests, and the public or social effects must be measured as well. Possible and acceptable approaches to the latter aspect of the job are not so clearly discernible. The private benefits that accrue to under-employed labor as a result of expenditures for conservation is a case in point. Theoretically, it would be possible to measure such increases in employment and incomes. But as a practicable matter it is difficult. It may be possible to develop factors based on the extent that certain volumes of expenditure would utilize available under-employed resources. Actually, the best that could be expected would be a considered estimate.

The extended losses or benefits associated with reductions or increases in crop and livestock production in a particular area or region presents equally difficult measurement problems. Reductions in row crops may mean tangible losses to the processors, handlers,

and distributors of the products who depend on a certain volume of business from a particular area. Substantial increases in grass and livestock in one region may mean greater competition, lower prices, and financial losses to the producers of the same products in another region. At the same time, the benefit of lower prices to consumers, and the long-time value of soil-resource conservation may offset any of the aforementioned losses. But the extent is a matter of judgment. However, the quality of the judgment will depend on reasonably accurate estimates of the initial increases or decreases in production that may be expected to result from the conservation program.

Certain benefits, such as reductions in highway maintenance and stream-channel clearance as the result of less erosion and sedimentation, can be valued directly as damages that would otherwise require an equivalent cost for repair and reconditioning, or as reductions in the cost of providing desired services. Reservoir siltation is a matter of placing a value on the reduction in the useful life of the improvement in terms of replacement costs or decreases in the value of services provided. More or less tangible effects of this type accruing to private or public investments may be evaluated with a reasonable degree of accuracy.

The additional security that farmers and others enjoy as a result of reduction of flood hazards may be measured as increases in real estate values resulting from lower capitalization rates, and increases in annual incomes. Certain amenity values associated with reduced flood risks and the enhanced desirability of living within a particular area also be may reflected in land values.

Social values present the most difficult measurement problems. The value of conserved land to national security, increases in the general welfare of the people over a long period as the result of adequate food supplies, and other welfare benefits are typical examples. Although considered qualitatively in past evaluation experience, little progress has been made in attaching quantitative weights to this type of benefit. However, it may be possible to include items of this type in the quantitative evaluations by making certain adjustments in the more tangible values that have commonly been expressed in monetary terms.

Prices and Interest Rates

An essential part of the task of estimating the probable benefits that may be expected from land-treatment programs involves the

determination of the prices that are appropriate for use in valuing various units of benefits and the rates at which annual capital costs should be computed and future values discounted. Moreover, in the determination of these two factors, modifications may be made in order quantitatively to express certain social values that usually have been treated only in qualitative terms, if at all.

So far, the dollar value is the only acceptable unit of measurement for reducing the various costs and benefits to a common denominator. Furthermore, appraisals of the relative desirability of present and future effects must be made in terms of prices and interest. Hence, if costs and benefits are to be given effective weight in the evaluation process, they must be included in the dollar-value determinations. Human lives and numerous other quantitative items may be counted, but in order to relate benefits and costs they must be reduced to some common reference.

The usual practice has been to consider the direct tangible costs and benefits which accrue to private or entrepreneurial interests in terms of market prices. In many evaluations, current or prevailing market prices have been used; but, more commonly, normal prices derived as an average for some historical period have been the basis for evaluation. Although it is difficult to justify the use of any particular historical price level as the basis for long-term future values, prices during some more or less stable period may provide a convenient starting point. From this base the attempt would be to make such adjustments as may be necessary in order to account for the outlook for each type of commodity, service, or cost involved in the evaluation. The resulting estimates would represent a series of expected future normal prices, the average of which might be higher or lower than that of the base period. From a private enterprise viewpoint, the price levels appropriate for comparing costs with benefits would be current prices for initial capital outlays and normal prices for all benefits and such recurring costs as operation, maintenance, and capital replacement.

Interest and discount rates represent another type of price, the function of which is to equate values and costs accruing at different points in time. Any cost expended currently may be compared to a future benefit only in light of the alternative present values that are foregone in favor of the future.¹⁰ Current practice has been to adhere

¹⁰ See L. C. Gray, "The Economic Possibilities of Conservation," *Quarterly Journal of Economics*, May 1918, p. 515 for an able discussion of this and other aspects of the theory of conservation.

rather closely to borrowing rates in establishing bases for converting costs to an annual equivalent, or in adjusting benefits to a comparable time basis. Two types of cost rates have been used as the basis for discounting benefits. One involves the use of a rate which approximates the interest rate on borrowed capital considered from the viewpoint of the beneficiary. The other has been the use of the Government borrowing rate in treating all types of costs and benefits, both public and private. The Government borrowing rate, aside from inflation possibilities, is practically risk free, so that its application to benefits would understate the risks involved from either the private-enterprise or the public viewpoint.

As with commodity prices, the application of a normal concept, rather than the prevailing interest rate appears to be desirable. Only in case funds may be borrowed for a term approximating the life of the project would current rather than normal rates be more likely to reflect the costs involved. Whether the same rate should be used in treating both benefits and costs is another aspect of the problem. The probability that costs would be more certain than benefits suggests the need for a higher rate in treating benefits, if the difference in risks is to be recognized.

Modification in market prices of commodities or interest rates to reflect social values constitutes a major problem of evaluation that has received only limited attention in connection with current practice. Some modifications of this type may appear feasible; others may be more difficult. Allowances for costs and benefits that are not exchangeable in the market and adjustments which would take account of differences in purchasing power represent areas in which some progress might be made. In this connection any modifications should be consistent with respect to both benefits and costs within projects and between projects. Otherwise the possibility of comparative analyses is nullified.

For certain types of benefits which might be purchased in the market it may be possible to estimate the price that would be paid if incomes were equitably distributed. The social value would accrue as a result of supplying all or most of the people with goods or services that only a few are in a position to purchase under prevailing income patterns. Thus the market price for any particular quantity of benefits would be modified so as to provide a total value commensurate with the total consumer value under the improved consumption pattern. This procedure would not result in

complete coverage of social benefits, nor, necessarily of any single benefit. Social values associated with certain types of consumer benefits (such as long-time health and welfare) might not be recognized by individual consumers and for these values they would pay nothing. In addition over-all social values such as the assurance of adequate supplies of food and raw materials for future generations and national security would not be recognized by individual consumers under any reasonable assumption.

The question of social values again arises in the case of current market interest rates. Should the supply price of capital be used to discount benefits that carry a high degree of social significance? This is another point at which it may be possible to modify the usual private or entrepreneurial consideration in order to account for social benefits. As in the case of market prices there are again no adequate guides as to how much market rates should be modified to allow adequately for any specific consideration involved in soil conservation. Use of long-term Government interest rates, rather than private market rates, as the basis for discounts may be justified only on the basis of the social values involved. The assumption may be that the potential social value of a particular investment is sufficient to offset the risk involved, and that an essentially risk-free rate is adequate to balance present and future social values. Or the assumption might be that the rate needs to cover only risks, if the productivity of capital may be disregarded as the basis of interest where there are no alternatives, as in the case of exhaustible, irreplaceable resources.

It remains, however, that no adequate guides are available for the quantitative expression of most social values. Until additional tools are developed, it will be necessary to use those that are available, even though it is recognized that some of these tools are not completely adaptable. As J. M. Clark so aptly states "... simple fiscal calculations must continue to be used, with the proviso that they need adjustment, but that radical adjustments should not be made unless sufficient cause is shown in the particular situation involved. Ordinary economic prudence should continue to take as its point of departure the calculation of whether the works concerned are worth the amount of money spent, in the usual fiscal terms."¹¹

¹¹ J. M. Clark, *Economics of Planning Public Works*, National Planning Board 1935, p. 57.

Comparative Evaluations

To the extent that it is possible to measure quantitatively the costs and benefits of soil and water conservation in monetary terms, certain acceptable procedures should be followed in calculating the comparative productivity of project investments. As stated and implied throughout this discussion, the principal need for economic evaluation in the field of land development and conservation is to develop criteria for guiding the design of projects and programs. It is recognized that both private and public resources are limited, and that they should be expended and utilized in the most judicious manner. Thus, the job of economic evaluation is to (a) select the most profitable alternative combinations of measures and practices, and (b) determine the most productive intensity to which they may be applied. The usual aim should be to plan any particular project or program in a way that will produce the *largest total net benefits*.

The procedure for making this appraisal is usually referred to as "marginal analysis." The theory of this type of analysis is that maximum net income of any project or program will be achieved when the most productive combination of measures and practices have been applied to the extent that the last unit of expenditure (cost) equals the corresponding marginal unit of income (benefit). It will not pay to apply the program more intensively because each unit of cost expended beyond the marginal equilibrium will return less than its cost. This aspect of cost-benefit analyses is frequently disregarded. The usual practice is to compare costs and benefits as a ratio, and to conclude that a ratio of "one to one" is the justifiable margin of intensity. To the contrary, it is clear that for any diminishing returns investment, the ratio of benefits to costs will be greater than one to one if the intensity of the cost applications is limited to the margin where the last unit of benefit is equal to its cost. The extent to which this will be true depends on the rate of decline in the diminishing returns schedule as additional inputs are added toward the intensive margin.

The evaluation of investments in soil and water conservation should proceed on the basis of this fundamental principle. In appraising possible alternative measures or programs the *first* step is to determine all the cost and benefit effects that can be measured quantitatively for each alternative. *Second*, these effects must be measured (or estimated) and reduced to comparable monetary terms according to the patterns of occurrence over time and the

nature of the incidence thereof. *Third*, benefits which are expected to occur in the future should be discounted at an acceptable rate in order to reduce them to comparable present values. *Fourth*, the comparison of costs and returns is usually done on either of two separate bases: (a) total present value of benefits is compared to that of costs, or (b) average annual benefits are compared to average annual costs. In comparing present values initial capital outlays and the discounted value of the costs of operation and maintenance are compared to the present value of gross benefits. On an average annual basis average annual benefits are compared to the combined fixed annual and variable costs, which would include operation and maintenance, interest, and amortization or replacement on the capital investment.

Comparisons based on present values and on average annual values or average annual equivalents represent the two most frequently used of several possible types of cost-justifying and project-rating criteria. When the same discount rate is used in treating both benefits and costs, the resulting ratios from the two methods are identical, regardless of the pattern of benefit and cost accrual. If a higher discount rate is used on benefits, the present value comparison will result in a less favorable ratio than that computed on the basis of average annual relationships. The full effect of differences in risk between benefits and costs may be reflected in the present value comparison, whereas risk differences are given but limited weight in the average annual comparisons. When emphasis is placed on the most effective use of limited funds, the rate of return on fixed investments may provide a more significant criteria for arraying projects according to relative desirability than either the present value or the average annual form of benefit cost comparisons.

Usually the criteria for project planning (justification for varying amounts and types of investment) will be the "maximum total net return." This means that a soil conservation project or program would be planned so that each phase would be applied to the point of intensity where the last unit of input would yield no less than its cost. If the analyses are developed so that for each unit of input the corresponding benefits are known, the marginal analysis will be simplified. Units of input may be in terms of cost-segments for a single measure, or each measure may be considered as an input-unit. In the first case the most profitable intensity would be determined by applying inputs until the resulting additional benefits were just equal to the last cost input. In the latter case, the combi-

nations of measures would be varied until the most profitable combination was found. Thus the unproductive aspects of any proposed program could be eliminated.

This type of analysis is essential to the intelligent investment of either private or public funds which are necessarily limited and for which there are alternative uses. Certainly, funds should not be invested in any part of a program which does not return an equivalent benefit. In fact, there may be instances where Government may recognize so many needs for the limited funds available that it would be advantageous to limit the intensity of any one project to the maximum rate of return per dollar invested, rather than the maximum total net income. At this point a number of factors enter the picture. Among them are the questions as to whether the partial investment would destroy future development that could be anticipated, and the possibility of adding to the intensity as funds become available over time. Farmers, too, might consider several alternatives, insofar as a particular year is concerned, in this same light. Thus, the aim would be to maximize total earnings over time from several different types of investment rather than to extend a single investment to its marginal intensity. Under no circumstances should investments be made beyond the margin. Farmers will aim to intensify up to the margin because it is presumed that competition for basic land resources (most scarce factors) will force them to intensify capital and labor inputs on a fixed area of land, in order to maximize net earnings.

It follows that if all benefits are included in the ratio, the investment should not be extended to the point where the benefit-cost ratio is 1 to 1. In past practice only those benefits which could be readily expressed in monetary terms have been included in the ratio. Thus, it could be argued that the total benefits, if all could be reduced to monetary terms, would result in a ratio substantially in favor of benefits. This stand is difficult to refute, particularly as it is probable that evaluations must continually include qualitative consideration of numerous extended and intangible benefits, in addition to those quantitative values that are essential for the marginal type of analysis. However, it should be recognized that past practice also has excluded numerous intangible costs that may be highly significant. In general only limited consideration has been given to the need for designing projects and programs by making a marginal analysis of each component measure as a part of the total. The preference has been to compute the total benefits and costs for

an assumed program, on the questionable assumption that each component measure was justified by its contribution to the program. Again, one of the principal considerations has been that of simplicity and feasibility, because costs frequently may be joint between several measures and separate analyses would entail complex and arbitrary cost allocations.

Need for Improved Basic Data

The transfer from the theoretical framework, herein described, to the practical job of planning and designing land improvement projects may not be entirely apparent. The burden of subjecting each segment of every project and program to the detailed array of input-output calculations that are necessary in order to determine the marginal relationships between benefits and costs for each input unit may seem unbearable. However, there are three ways of transferring from theory to practice that seem to offer some practical possibilities. *First*, the planners and designers of programs and projects should use these theoretical principles as guides in their qualitative consideration of various measures and practices. *Second*, the marginal approach is a valid procedure for determining the comparative productivity of various alternative measures and practices (each alternative considered as a single input unit). *Third*, the greatest practical use of marginal evaluations can be achieved only if adequate basic input-output data is made available from past experience and experimental projects. The comparative productivity of various measures and practices, applied at varying intensities under the full range of possible physical conditions, then, can serve as "grist" for the mill of project planning and design analysis.

Thus, it is clear that most benefit-cost evaluations are estimates of what will result, rather than measurements of what has or is resulting. The aim is to make advance estimates of the economic effects that may be expected to result from alternative combinations of measures and practices that might constitute a soil and water conservation program, as a basis for designing and planning specific projects. At the same time, analyses of this type provide the cost justifications that should guide the investment of both private and public resources.

The greatest weakness in economic evaluation shows up at this point. The principal need is for research projects to assemble physical data which depict the inputs and outputs of various soil and water conservation measures, applied at varying intensities and in

alternative combinations. To be useful, these data must be collected so that they will represent specific land resources and associated conditions. The application of monetary values to these inputs and outputs should be a part of the assembly process; otherwise significant physio-economic relationships may be lost. Not only is it necessary to gather basic data of this type for those costs and benefits that are readily commensurable in terms of crop yields and fertilizer costs, but observations and appraisals of the intangible and extended benefits produced by existing projects and programs should be made. Only after adequate basic data have been assembled from experience can the evaluation of proposed soil and water conservation programs be made intelligently.

Another type of data is needed especially to facilitate the projection of costs and benefits into the future. Acceptable long-term or "normal" prices for translating costs and benefits into monetary terms is essential. Although most initial private costs should be in terms of current prices, the great variation in prices applied to operation and maintenance costs should be replaced by standardized future price schedules. The monetary values of both private and public benefits, also, must be standardized as much as possible. Substantial reasons may exist for considering all public costs, as well as benefits, entirely in terms of long-term or normal prices, as an appropriate basis for allocating resources.

In addition to the general need for improving and standardizing analytical techniques and methodology as procedural guides, greater attention should be given to expanding the coverage of both benefits and costs. From the standpoint of public investments, quantitative evaluations should be extended to cover as many of the public effects as possible. The aggregation of all private effects and the modification of the values applied to private benefits and costs should be explored intensively as possible approaches to expansions in the scope of coverage.

The aim should be to improve the reliability and significance of economic evaluations for determining whether the benefits from public programs are sufficient to justify the costs. Even though complete coverage of all effects may not be feasible, an increase in the area or proportion of effects subject to objective evaluation would be a definite contribution. Progress toward this goal is a challenge that must be met if benefit-cost evaluation is to merit acceptance as a scientific process.

CURRENT ISSUES IN FEDERAL LAND MANAGEMENT IN THE WESTERN UNITED STATES*

M. M. KELSO
Montana State College

THE federal ownership of privately used lands and the policies followed by the federal agencies that manage those lands are among the important economic issues in the western United States and among the more controversial issues in that region. The agriculture of the West—and that means for much of that area its major economy—depends for its very existence to a considerable degree on land in federal ownership; that in itself would make the matter important. But when we add that there is sharp and widespread conflict over the very existence of federal land ownership in the West as well as over the manner of its management, it is apparent that here is a problem that demands attention.

The subject covers a wide range of issues and is exceedingly complex. It goes far beyond what can be covered within the limits of this paper. Federal lands are not a homogeneous category, nor is their management a homogeneous function. Federal lands vary because their character, situation, and use vary widely; their management varies not only because their character varies, but also because they are managed by several federal agencies whose policies and methods are not uniform even though they are all “federal.”

Except for land held by the Bureau of Reclamation and for some land held by the Indian Service in trust for the Indians, federal lands in the West do *not* include much, if any, land that is valuable for crop production or other relatively intensive use. But they do embrace lands suitable for a wide range of extensive uses. Federal lands in the West are used for the production of lumber and other wood products; for watershed protection to reduce flood and silt damages below them; for water production for irrigation, municipal water and power; for recreation including both summer and winter cabin sites and including wildlife for hunting; for grazing by domestic livestock; for restoration of impaired resources; for Indian welfare; for military training and storage depots; for mining and prospecting for mineral wealth, to name the more important.

The federal agencies responsible for land management in the West

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are well-nigh, though not quite, as numerous as are the uses to which the land is put. Federal lands in the West are managed by the Forest Service, the Bureau of Land Management, the Park Service, the Indian Service, the Bureau of Reclamation, the Fish and Wildlife Service, the Soil Conservation Service, the Departments of War and Navy, to name the more important ones. If these were merely operating arms of an agency possessing a single management policy, the list would be of only academic interest. But because each agency, within the limits of law and subject only to the most general kind of overhead unification, makes its own management policies and determines its own operating methods, the complexities attendant upon the widely divergent uses to which the lands are put are compounded by the divergencies in management policies.

The volume of resources encompassed by federal management in the 11 western states is huge—both in acres (406,500,000) and in proportion to the total land area of these states (54%). Of course, these federal lands are the lesser productive lands of the West, so that their physical contribution to production is not proportional to their acreage, but because of their vast area, because they constitute a large proportion of all lands, and because they furnish some irreplaceable resources (summer grazing, for example), they are of tremendous importance in the West.

Although this is a session on Land Economics, our concern is primarily that of agricultural economists; and so, rather arbitrarily, I shall confine consideration of this western federal land problem to those of its aspects that are agricultural, including forestry. We will consider it from the standpoint of lumber production, grazing, watershed protection, and water yield, and those aspects of recreation that are inseparable from the other uses named. The federal lands we will be considering in this paper are primarily those administered by the Forest Service, the Bureau of Land Management, and the Soil Conservation Service. These three agencies administer 78% of the 406 million acres of federal land in the eleven western states, or 42% of all the land area of these eleven states.¹

¹ Consideration of the use and management of Indian lands by the Office of Indian Affairs will not be included in this paper because these lands present problems peculiar to themselves. To include them would seriously complicate the paper; they are, nevertheless, the principal category (11.1%) of federal western land not included here, and they are used primarily for agricultural purposes.

The Bases for the Current Issues

Before we take up the issues relating to federal lands in the West, it will be well to review rather cursorily the circumstances out of which the issues grow. Three factors that are basic to the issues relating to western federal land management are (1) the fact that federal managing agencies perform many ordinarily private functions, (2) multiple-use management of federal lands, and (3) administrative allocation of publicly owned resources to private enterprisers. Each of these will receive brief consideration.

The Federal Managing Agencies Perform Many Ordinarily Private Functions

The federal agencies that manage federal lands in the West perform many functions ordinarily associated with private enterprise. Typically the federal agency managing land in the West assumes the cost and responsibility for producing the land's crop; the right to harvest the crop is then sold or leased or permitted or given outright to private enterprise for exploitation for private profit. On federal timber land, the federal agency grows the trees at public cost and decides when and what trees to market; it then sells the trees "on the stump," usually at competitive bid, to a private operator who will harvest and market the crop under specified rules and regulations. On federal grazing land, the federal agency will manage the resource, improve and develop it, and plan its use all at public cost and will "lease" or "permit" its use to a stockman to harvest and market the forage through livestock for a term of years, at a price, and subject to rules and regulations. On watershed lands, and likewise on recreational lands the federal agency produces the water, or the game, or the recreational attributes and facilities; it produces them at public cost but makes the "product" available to the general public without charge, whether the product be water to use in private production, or game, or camping, or other form of recreation.

For some uses the federal agency manages the resource at public expense for use by the general public; for other uses the agency manages the land to create a product that is disposed of for a charge through private enterprisers as a basis for private profit. In some settings the agency functions in a manner and for purposes that the ordinary citizen associates with public enterprise; in other settings it functions in a manner and for purposes that the ordinary citizen

TABLE I. RURAL LAND HOLDINGS IN FEDERAL OWNERSHIP, BY PRIMARY ADMINISTERING AGENCIES IN 11 WESTERN STATES, 1945¹

	Arizona	Colorado	Idaho	Montana	Nevada	New Mexico
	(acres)	(acres)	(acres)	(acres)	(acres)	(acres)
Forest Service	11,473,127	13,684,788	20,069,831	16,333,259	5,051,372	8,973,756
Grazing Service ²	10,164,275	7,973,254	12,469,654	5,920,299	33,315,790	15,071,681
Office of Indian Affairs	19,423,454	730,273	864,532	6,502,866	1,141,170	6,657,738
General Land Office ²	2,501,026	677,530	503,106	1,821,247	12,810,844	524,397
National Park Service	1,144,573	518,270	70,531	1,140,924	115,849	230,739
Bureau of Reclamation	3,351,813	172,484	366,664	250,600	1,534,829	138,553
Soil Conservation Service	46,712	655,042	126,149	1,918,248	3,385	655,950
Fish and Wildlife Service	120	2,786	11,265	90,095	2,240,334	76,092
Farm Security Administration	6,019	5,037	9,947	73,140	0	92,135
War Department	4,968,847	698,094	63,938	719,720	3,463,280	2,077,367
Navy Department	0	59,168	22,479	0	175,277	0
Agricultural Research Administration	315	66	32,516	73,312	160	0
Other Agencies	11,575	1,667	8,308	701	13,562	33,022
Total	53,391,856	25,178,459	34,608,970	34,834,411	59,865,852	34,581,435
Land Area of State	72,691,200	66,538,880	52,997,120	93,642,240	70,273,280	77,767,040
Percentage of Land Area of State Federally Owned	73	38	65	37	85	44

¹ Many reservations and withdrawals overlap and large amounts of Federal lands are jointly administered and have multiple uses. In this tabulation overlaps have been eliminated so far as possible and all acreages are reported under the one agency considered to have primary administrative jurisdiction. Consequently, the totals listed in this table are not necessarily all the lands administered by the agency for a particular function or use.

² The Grazing Service and the General Land Office have been combined since this table was prepared and now compose the Bureau of Land Management.

(a) less than .1 of 1%.

Source: L. A. Ruess and O. O. McCracken, *Federal Rural Lands*, U. S. Department of Agriculture, Bureau of Agricultural Economic June, 1947. Appendix, Table 25.

TABLE I—(Continued)

	Utah	Wyoming	California	Oregon	Washington	Total	
	(acres)	(acres)	(acres)	(acres)	(acres)	(acres)	%
Forest Service	7,838,035	8,564,661	19,552,419	14,434,594	9,605,562	135,581,404	33.4
Grazing Service ²	24,970,216	14,453,545	3,368,194	12,370,503	0	140,077,411	34.5
Office of Indian Affairs	2,524,754	2,080,625	674,370	1,735,141	2,722,605	45,057,528	11.1
General Land Office ²	355,851	2,208,102	13,454,942	3,045,157	560,494	39,462,696	9.7
National Park Service	285,481	2,317,266	4,154,041	164,863	1,132,837	11,575,424	2.9
Bureau of Reclamation	265,159	1,127,663	1,800,554	194,212	577,925	9,810,461	2.4
Soil Conservation Service	41,923	538,058	18,043	210,693	277,232	4,214,441	1.0
Fish and Wildlife Service	62,816	32,417	31,534	126,235	59,669	2,733,363	.7
Farm Security Administration	1,117	2,318	2,381	812	844	193,750	(a)
War Department	1,943,063	98,493	1,855,165	314,832	402,832	16,600,681	4.1
Navy Department	92,305	9,641	582,519	3,745	55,768	1,000,902	.2
Agricultural Research Administration	0	0	466	461	0	107,296	(a)
Other Agencies	5,292	4,795	20,709	2,379	8,186	110,196	(a)
Total	38,986,018	32,432,584	45,515,337	32,603,627	15,127,004	406,525,553	100
Land Area of State	52,701,440	62,403,840	100,353,920	61,664,000	42,865,280	753,898,240	
Percentage of Land Area of State Federally Owned	73	52	45	53	35	54	

associates with private enterprise. Out of this circumstance alone arises some of the conflict over federal ownership of western lands; it doesn't square with some citizens' notions of what is "right."

If we could divide the federal lands of the West into two groups, on one of which functions are performed that are ordinarily thought of as public, and on the other of which functions are performed that are ordinarily thought of as private, then it would only be necessary to decide whether as a nation we wanted those lands on which ordinarily *private* functions are performed to be managed publicly or privately. But unfortunately it cannot be that simple. On a large portion of these federal lands, not only one, but *all* these uses, private *and* public, are practiced simultaneously; or if not all of them, *at least more than one of them.*

Multiple-Use Management of Federal Lands

This is the practice of "multiple use"—the practice that characterizes federal land administration in the West particularly on the National Forests. Under multiple use no one use and no one user is granted exclusive use of any single area, although he may be granted the exclusive practice of one use on an area. Multiple use is simultaneously the chief supporting argument for public ownership and management and the chief source of conflict between users and the managing agency.

When grazing is the only use on federal land, it can be legitimately argued that, in line with long established national policy regarding agricultural land in the United States, it should be privately owned. The whole operation of grazing is in line with what generally is looked upon as private enterprise. Forage is grown, the resource is developed by additions of capital, the forage is harvested by livestock and the livestock sold on the market. There is nothing to distinguish this operation from pasture use on any owner-operated farm in America. But suppose this grazing use is only one of several uses on the same area, the others being watershed protection and water yield which are of equal or, what is frequently true, of greater value than grazing use?

These uses may be and frequently are in conflict. In many instances if the land area were in the exclusive possession of the grazier, removal of the forage cover beyond what is optimum for run-off retardation and water yield would result because to the grazier these latter values represent no return nor any cost, and so he will graze

to what he considers to be the limit of long-run returns to *grazing*. Under such circumstances, the land *must* be in public management if there is to be *any* management specifically in the interest of the other multiple values involved.

But out of this very device part of the conflict over western federal land management arises. Grazing is reduced in the interest of watershed protection and water yield, and the grazier understandably objects. Why should we expect him to do otherwise unless he is motivated by a larger fund of "social consciousness" than are most of us? He gets only slight return from the watershed protection and none from the water yield; he loses directly and immediately for every head of livestock he is prevented from grazing. He has everything to lose and nothing or very little to gain.

Look at the same problem from the standpoint of timber production for wood products including lumber. Growing trees fulfill several other ends besides the production of lumber and wood products; something approaching a climax timber stand may add significantly to watershed protection, to retardation of water run-off, to recreation values, as well as to wood production. But the trees on federal lands, once they are grown, are subject to sale by the federal agency for wood purposes. Within the requirements of the other competing uses for the trees, the agency decides upon a harvesting policy, marks the individual trees the removal of which will effectuate that policy, sells them on the stump to the private enterpriser to harvest and market under rules and regulations as to removal methods. By this process the lumberman, who is a profit-motivated businessman, is spared the "ripening costs" of the slowly growing tree crop and will need to pay only its raw material worth when ready for harvest, a value set usually by competitive bidding at the time. But the lumberman's costs per thousand board feet of lumber sawed go down as the number of thousands of board feet sawed per acre goes up. The lumberman therefore presses on the federal agency "to mark every tree that will make a log"—his costs will be reduced thereby—his net will be increased. But to the administering agency other objectives than maximization of the lumberman's profits enter in to the calculation. Some trees that will make merchantable lumber may be more valuable as watershed protection, as water run-off regularizers, as seed trees for a new crop, as potential saw-logs for an early second harvest which will stabilize dependent village communities. Conflict of interests is inevitable.

Administrative Allocation of Publicly-Owned Resources to Private Enterprisers

This brings us to the third and last of the basic circumstances out of which grow the issues related to western federal land management. A large part of these federally-owned resources are and must be allocated among private enterprisers by administrative decision and not by competition.

Allocation of federal grazing land privileges is a complex administrative procedure. Privileges on grazing lands are granted to owners of livestock who own or legally control dependent land and who must have the use of some range types controlled by the public in order to balance their operation; these privileges are granted to a stockman only for such numbers of livestock as he must have to make reasonable use of his private dependent lands. His use of the public range is subject to rules and regulations designed to protect the public range from deterioration but with an eye also to their effect on his use of his own dependent private lands. The federal agency grants exclusive use of certain resources to a private enterpriser in return for a cash payment *and* the right to regulate, in part at least, not only the private enterpriser's use of the public range but his use of his privately-owned dependent range as well.

Under Public Law 273, recently passed by the Congress, the same procedure of administrative allocation of timber resources can be applied on National Forests. A long time exclusive access to government timber on a specified area may be granted to a single enterpriser in return for public regulation of timber production and harvest not only on the public land assigned to his exclusive use, but also on the enterpriser's privately-owned timber land placed by him in the timber pool. This device is designed to broaden the influence of the federal forest administering agency in obtaining improved forestry on private timber lands. But it does so at the expense of engendering potential conflict—exclusive access to a publicly-owned resource is granted by administrative decision for a long term (one hundred years in the one agreement executed so far) to a single private enterpriser. The cry of "monopoly" is raised by the operators who are or who think they are now denied equal access. And, furthermore, the federal administering agency faces the almost certain probability that as its lands move into these long-time agreements, it will meet the same pressures and conflicts from and with its "timber permittees" that it now faces from its grazing permittees.

The holder of an exclusive privilege of private use on public land, whether it be grazing land or timber land, will urge the enlargement of his privilege, will contest the rules and regulations under which he operates, and will argue the unreasonableness of them when they exist to serve other uses than lumbering or grazing. Those who do not hold privileges on the land but would like to do so will argue favoritism, monopoly, "currying favor with the big operators," etc.

Such conflicts as these are inevitable in a system of administrative allocation of resource use to private enterprisers for exploitation for private profit. *But competitive allocation of federally-owned grazing land resources at least is well-nigh impossible.*

Federally-owned grazing lands in the West almost universally do not lie in blocks that can be organized into successful economic units composed exclusively of federal land. They cannot be "homesteaded" in economic units and thus provide economic opportunities for additional people. If the available *area* of federal land in one block should happen to be large enough for an economic unit, it will not embrace all the essential resources for a successful unit; it will contain no water or no hay lands or its use for grazing will be adapted to only one season of the year. Such lands can *only* be used in conjunction with other lands already privately owned, or with other lands controlled by some other federal agency for other purposes, such as watershed protection, or with other lands owned by a state or a county. The only competition there can possibly be for these federal grazing lands is that between the owners or lessees or controllers or other adjacent lands. It cannot be between these adjacent operators and the citizenry at large. And in many cases there is no competition for their use even with other adjacent property holders; frequently these federal grazing lands are so located relative to other lands that one operator and one operator only can make use of them.

Hence, the debate over the granting of exclusive grazing privileges to established individual stockmen and excluding the general public from grazing access to them is entirely beside the point. The granting of grazing privileges on most of these lands can be competitive only as between adjacent stockmen and frequently can not even be that.

Though it is *possible*, granting grazing privileges on federal land to established stockmen by competitive bidding is very undesirable. It is frowned upon by stockmen and these administering agencies

alike. Competitive allocation of lumber resources on federal land to private operators is the common practice though Public Law 273 opens the door to a change here in line with that on grazing land. Why is it undesirable to allow competitive bidding to allocate grazing use on federal land? The federal grazing privilege can be used only in conjunction with privately owned lands; privately owned lands and their capital improvements represent a fixed and unremovable investment on the part of the private operator. Stability of operations, desirable to individual and society alike can only be insured if the federal grazing privilege is tied to the privately owned ranch lands with some degree of permanence. Subjecting them to competitive allocation would keep the pattern of operations in an impossible state of fluidity and instability. Timber, on the other hand, can be satisfactorily allocated competitively because the harvest of the trees does not involve large unmovable capital investment except in the case of large sawmills. With modern means of transportation the logs can be transported to the mill from over a sufficiently large area to permit steady operation of the mill.

These three basic characteristics of federal land management out of which the issues over western federal lands arise though discussed separately are not separable in fact. Each is in large measure only another way of looking at the others; each is largely an inevitable accompaniment of the others.

Multiple-use management of the lands seems to make public (in this case, federal) management inevitable. Yet multiple-use management creates inter-use conflicts and conflicts between competing users and the federal administering agency. Stockmen want more grass, lumbermen want more trees, recreationists want more timber and game, irrigators want their water in regular flows without floods and shortages. Restriction imposed on each in the interest of others brings the ire of the restricted user down on the federal managing agency.

Multiple-use management means public management of the resource for *all* its uses, many of which will be of a sort ordinarily thought of as *private* in character. This will clash with our cultural belief in private ownership of all such privately exploited assets. Partly, of course, this clash is purely emotional—not, for all of that, any less real nor any less powerful—but not rooted in objective considerations. Partly it is an expression of dissatisfaction with

what, at least to date, have been some of the inevitable features of public management of privately exploited resources. Stability of operations is the will-of-the-wisp forever pursued by enterprisers—when natural phenomena are the cause of instability, they occasion the seeking of relief from the larger community. Natural causes of instability are sufficiently distasteful; just add to that, instability brought about by the acts and decisions of public officials, and the enterpriser calls on the larger community to rid him of this impossible burden. Is it possible to have stability of operation of private enterprise—either lumbering or ranching or resort operation—with public management of all or any significant part of their basic resources? Changing fees, changing rules and regulations of use, changing numbers of stock permitted on the grass, changing numbers and kinds of trees marked for cutting, changing areas of land allotted for grazing or lumbering, changing the weights used in resource allocation as between grazing, lumbering watershed management, and recreation—changes coming with changes in the personalities of the managing personnel, with changes in political controls of government, with changes in public thinking, etc., are extremely upsetting to the managers of enterprise. Demands to get them out of the hands of the “Bureaucrats” are the inevitable outcome.

So we are brought up to a consideration of the issues now extant that relate to western federal lands. We will consider them under three headings—(1) the issue of public vs. private ownership, (2) the issue of federal vs. state ownership, and (3) the issues that arise out of federal management of lands used by private enterprisers.

Current Issues in Federal Land Ownership in the West

The Issue of Public vs. Private Ownership

This, the first and most crucial issue today, is also the most fundamental of all—should these federal lands in the West be in federal—or in public—ownership at all? Shouldn't they be converted into private lands like practically all lands exploited for private profit elsewhere in America?

As with all such broad questions, the answer to it can be neither “yes” nor “no.”

Three characteristics of western federal land prevent the major proportion of it being converted to private land. One characteristic

is the multiple-use management of much of it; another is the economic impossibility of much of it paying its own way in private ownership; another is that much of it is not amenable to division into areas for single enterpriser control. We shall look at these one at a time.

First, let us explore multiple-use management. Much of the western federal land is and must be managed in the interest of grazing, timber production, recreation and water run-off regulation, all on the same area and all at the same time. Now, some of these uses, even if they were practiced alone and to the exclusion of all others, would require public—under present conditions—federal management. Recreation or water run-off control, even if practiced alone on an area, are not amenable to private management. If either or both of these uses are important on any area of federal land, it must remain under public management regardless of the amenability of its uses for lumber production or grazing to private control. Furthermore, even if only lumber production and grazing are uses practiced jointly on a given area, and even though such uses, if practiced singly, are amenable to private management, the presence of the two of them together necessitates public management; they are to a degree conflicting uses and private enterprisers do not customarily undertake both enterprises together. Grazing will be one enterprise, lumbering will be another, if ownership of the land vests in one or the other form of private management; one use will take place to the virtual exclusion of the other.

It follows, therefore, that for any and all federal lands on which multiple-use management to any important degree is practiced or required, private ownership cannot be the answer. Western stockmen's associations that at the moment are in the forefront of the drive to convert these federal lands to private lands recognize this fact. No spokesman for these associations argues that *all* federal lands in the West should be converted to private ownership; they very carefully say that only those lands *chiefly valuable for grazing* should be so converted. Now admittedly that concept of *chiefly valuable* can be a fruitful source for argument, but it is sufficient to demonstrate that the livestock spokesmen recognize the legitimate claim of multiple-use lands to public ownership.

Second, let us look at the economic impossibility of some of these lands carrying the burden of private ownership costs. I doubt if there is any intrinsic or inevitable reason why these lands cannot

carry the costs of private ownership. But looking at our cultural beliefs and the institutions they produce, I do not see any early prospect for institutional changes that *will* permit their private ownership at reasonable costs. What are some of these institutional stumbling blocks to private ownership of much of this land? Taxes and investment costs are in the forefront. It is so common as almost to be a maxim that lands of low productivity are over-valued for taxation purposes. Grazing lands as a whole and federal grazing lands in particular are of low productivity, probably the least productive of any lands used for agricultural purposes. It is almost a universal phenomenon that these poor quality grazing lands if privately owned are over-assessed. The only way by which private ownership of these low productive lands can persist at all is by the device of packing into one privately-owned range tract more grazing units, more productivity if you please, than actually exists on it. This act of legerdemain is performed variously by over-grazing (which is but a temporary expedient), by the ownership the tract gives of strategic water or shelter or hay, or by the control it gives over additional forage units that exist on other tracts unowned and unleased by the operator which the taxed tract controls.

It is pretty well demonstrated by experience and experiment that the net economic productivity and hence net capital value of grazing lands in the West falls to zero at some point near a physical productivity of 24 AUM of grazing per section (2.0 cows or 10 sheep per year per section). (This is not a hypothetical, unrealistic figure for the average carrying capacity of Grazing District #5 in Nevada is 2.5 cows or 12.5 sheep per section per year.) Does anyone think the County Assessors would put *any* privately-owned grazing lands on their assessment lists at zero value? Yet if they do not, such lands as these are carrying a higher charge than they are worth and better lands are assessed at proportionally inflated values.

Another and more troublesome angle to this same problem arises because the use of these federal lands has gone on for years without any charge at all being made for their use or with a charge less than private lease rates for comparable land. Now recall that in essentially all cases these federal lands are used only as adjuncts to other privately-owned ranch lands. If you as an enterpriser were able over an extended period of years to acquire an operating unit part of which cost you nothing or less than a full productive value,

what would you consider to be the value of your private land? Certainly something more than the productive value intrinsic in your private land—and that's what has happened extensively in the West. The privately-owned grazing lands as an investment and as a tax base carry values that include to a considerable degree the productive worth of the forage values supplied free by associated federal lands. If, now, you as an enterpriser were suddenly faced with the need for owning these formerly "free" forage resources and you were already paying part if not all of the costs for these resources in connection with the lands you already own, what would *your* reaction be? You would know that now these lands would go on the tax rolls, that the lands you already own would not be reduced in taxable value, and that anything you had to pay for those lands beyond a nominal price would result in investment and tax costs that you already were carrying on your present private lands.

All of this, as I have said, is a difficulty that is man-made; our institutions are not fitted to this situation; there is no intrinsic reason why they might not be. But institutional reform of the sort required is awfully slow, and in the meantime those who buy these lands are penalized to the economic competitive advantage of those who do not. So you can see why in spite of the fact that some of these federal lands *might* justifiably be offered for private ownership, many of them will not be accepted even if offered free of charge.

The economic problem of private ownership of western federal lands has been discussed with reference to grazing land. Much of the same thing can be said of lumber producing land. The private lumberman cannot in most situations, certainly not in the western states, afford to own the land on which his lumber grows. Where he does own "timber land," what he *really* owns is a stand of merchantable timber. When he markets the timber, he will be left with land, the ownership of which he will usually be anxious to rid himself. The long time period of waiting and risk required to grow a lumber crop usually causes the land on which it grows to have a less than nothing value to the private enterpriser. So here, too, even though some of this lumber-producing land might have no other use than that and be amenable to private management, it will not appeal to private ownership *except insofar as it now bears a harvestable crop of trees*.

There is still another characteristic of western federal lands that will prevent some of them moving into private ownership without considerable change in habits of thought and attitudes in the West. Much of this western federal land, even though usable for grazing and for nothing else, is not amenable to ownership and use by a single ranchman. Much of the winter sheep range, particularly, is of such a sort that the sheep bands must be herded over it in wide circles or must be free to move considerable distances as droughts or winter storms may dictate. Single, private allotments are not practicable nor customary; open range herding over a common area with other bands is the long-established pattern. Private ownership under such a pattern of use can arise in case wide areas, huge areas, could be sold to a collective of private enterprisers; this is again not an inherently impossible development but is far from immediate realization entirely because western stockmen generally don't think in these terms. Such an arrangement exists today in the Red Desert of Wyoming and has been in existence for forty years. It's not unknown or impossible—just unfamiliar.

We see, then, three reasons why private ownership of all western federal land is a hopeless goal—the reasons are (1) the importance of multiple-use management, (2) the economic reluctance of private enterprisers to invest in much of it and to be subjected to taxes on it, and (3) the impossibility of some of it being used in independent private allotments. We conclude that private ownership of *all* western federal land is a will-o'-the-wisp; that not all of it can with any practicability whatever be privately owned and managed. Much of it will remain public, federal, even if it were offered gratis to any taker.

But on the other hand, it is equally unrealistic to argue that the federal land of the west must *all* remain federal or even public. For just as it can be pointed out that these federal lands cannot, realistically, be all passed into private ownership, it can be pointed out with equal cogency that not all these federal lands *need* be retained in federal or even in public ownership.

The unquestioned public policy in this nation is for private property in agricultural land. This is true even though much of that private land is subject to varying degrees of variously serious kinds of deterioration under private ownership. But is the institution of private property in farm land under any serious attack for that reason?

Much of western federal grazing land is subject to no more serious, to no more long-run damaging abuse under private ownership than are vast areas of privately-owned farm lands. It is no wonder, then, that federal grazing lands of such kind should be urged as amenable to private ownership. Of course, the whole institution of private property in agricultural land can be questioned; a good case can be built for public ownership of all farm land; but that is an issue for the public to decide and so long as it is overwhelmingly accepted that farm lands be privately owned, then the burden of proof is upon those who urge otherwise relative to a significant portion of western federal grazing lands. A large part of the federal grazing lands in the Great Plains and in the inter-mountain semi-deserts have no alternative or joint use to grazing, and are not subject to self-accelerating erosion from overuse; such lands are amenable to private ownership as soundly, as unquestionably, as the farm land of the corn belt.

Resolution of this conflict over public vs. private ownership of western federal lands (grazing lands particularly) can only be resolved, even partially, by the creation of an agency for separating the lands into two groups—those amenable to and those not amenable to private ownership. What, then, will be posed will be issues relating to the sale into private ownership. These issues are complex. I will not discuss them in this paper in order to keep it within reasonable length. Here is, however, an important problem for western agricultural economists to be working on to be prepared for the day that I believe to be inevitable when transfer of some western federal lands to private ownership will be instituted.

We conclude, however, that *private* ownership of western federal lands is *not* the answer to the problem except on a small fraction of these lands.

The Issue of Federal vs. State Ownership

Just because most of the land must remain public rather than move into private hands does not mean, of course, that it must remain *federal*; it may remain public and be shifted from federal to state ownership. To this issue I will devote little space; it is not amenable to solution by economic argument. It rests in considerations of political science and your philosophy of government. It will suffice to point out that the record of public land management by states and counties in the West shows

no example of public land management of a quality comparable to most of that of the federal government. This is not to argue federal perfection, but merely to point out that as between federal and state or county management, federal management on balance surpasses state or county management in quality. Except for the possibility that certain groups of users might more fully dominate management policy if the lands were in state or county hands, there would be little gained and much would probably be lost by a shift from one kind of public ownership to another. This is the source of much of the stockman pressure in some states for transfer of federal grazing lands to state control.

Issues that Arise Out of Federal Management of Lands Used by Private Enterprises

There is not time or space here for a complete consideration of the many elements that go to make up the issue of landlord-tenant relations in private use of federal land in the West. It is clear however, that here lie the issues most in need of solution for it is apparent that most of these western federal lands are going to remain federal and are going to be used by private operators under some kind of tenant agreement with the federal landlord. But we can illustrate what is involved by discussion of a few selected points.

1. *Security of expectations* for the private user. The private user of federal land in the West, just like any tenant, seeks earnestly for *security of expectations* with regard to his control over land resources. In its crudest form, this urge expresses itself and is now expressing itself as an urge for private ownership of the land involved. The issue is particularly acute on grazing land. The federal administering agencies have traditionally insisted upon the right of freedom of action to modify use privileges granted. Private users have had considerable real and fancied feelings of insecurity. It is entirely beside the point to argue as do some federal personnel that many use privileges have stood unchanged for long periods; it isn't stability of the past that interests the operator, but the prospect for stability of the future.

Security of expectations in these cases can be enhanced, short of ownership which as we have seen is unattainable in most situations, by either (1) perpetual attachment of granted use privileges on federal land to the private property of the user, or (2) by use privileges granted annually but automatically renewable from year

to year with these additional features: notice of change in allotments to be given well in advance, user and administering agency each to have the right of and access to impartial arbitration of differences, provision for reasonable payments for damages by either party to the injured party and provisions for payment of compensation for unexhausted improvements. Perpetual attachment of grazing use privileges to their private base lands has been the solution long urged by stockmen users; annual allotments automatically renewable is comparable to the arrangements urged upon private landlords and tenants by students of land tenure. The latter has not been generally advanced as a solution for the federal land use conflict because it has not been generally recognized that the relation between administering agency and private user on federal land *is* a relation of landlord and tenant.

2. *Protection for the landlord against damage to his resources.* The administering agency, as is true of any conscientious landlord, seeks earnestly to protect his property against waste and damage by the user. In its crudest form, this urge expresses itself as it now does by insistence on the part of the administering agency for complete freedom of action in all matters relating to when, how, and in what intensity the user shall make use of the federal resource. The private user violently opposes this freedom of action on the part of the administering agency; it runs counter to his desires for security of expectations.

3. *The level of charges* levied for use of the federal land. The private user is interested in securing at the lowest possible cost the use privileges made available to him. The administering agency is under continual pressure to set the fees it charges for use of its land at a level fully comparable with that level at which private competition would set them, were it operative.

At first glance it would appear that this conflict of interests is no different from that between private bargainiers, and that there should be room for a meeting of minds at fees reasonably close to what free competition might set. It might seem that insistence by private users of the public land upon a fee considerably below rents charged on comparable private land is pure selfishness. But it is not that simple. As a result of long history of use of these federal resources at costs below comparable private land costs, the capitalized savings have become imbedded in the values of the privately-owned associated lands. Under these conditions, any fee higher than the customarily low fees will be too high for the user but this

customary fee is considerably below the charge continually pressed on the administering agency by the public.

4. The decision as to whom among several possible beneficiaries shall be granted the use privileges. Somehow the decision must be made: to whom among several possible users shall a particular privilege on a specific area of federal land be given? The administering agencies have set up various kinds of rules to guide them so that the decision won't be entirely arbitrary: priority of use, degree of dependency, and minimum and maximum limits on privileges extended together with the right to cut at will privileges above the maximum for redistribution to users below the minimum. But administrative decision still is the essence of the process.

Between *private* landlord and private tenant, conflicts over all these points arise but they are settled by competition and negotiation with the judicial process available as an arbiter of disputes growing out of interpretation of the lease contracts. Nothing resembling competition, very little resembling negotiation, and a quasi-judicial process that is not truly judicial regulate the landlord-tenant relations on western federal lands. *Public political debate* is substituted for private negotiation and adjudication as between private user and administering agency on western federal land.

Casting the problem in this form suggests that the basis for solution of the problem lies in the creation of a new kind of public body on which the interests of both the administering agency and the private user are represented. Before this body, conflicts between administering agency, private user and possible user over privileges of use, fees to be charged, rules and regulations related to use, allocations of privileges, damages for waste and compensations for unexhausted improvements can be brought, argued, and arbitrated. Some kind of a set-up which will establish something as nearly as possible like negotiation and contract in private affairs must be found. Here is the most important place for study by western agricultural economists concerned with this federal land problem. The make-up, organizational setting, and limits to the area of decision open to this agency is a problem to be worked out; the extent to which its actions must be circumscribed by legislative direction must be determined. *This or some other more fruitful device must* be constructed. A means to resolve the conflict between administering agencies and private users of western federal land *must* be found if private use of federal resources in the West is ever to be anything but a ceaseless bickering in a political arena.

DISCUSSION*

C. W. LOOMER

University of Wisconsin

For a few moments I should like to comment on one of the issues raised in the paper we have just heard—whether federal lands in the West can or should be passed into private ownership. Professor Kelso's analysis seems to me an entirely reasonable statement of general policy. If the land is not used or needed for a specific public purpose, if it is physically capable of division into individual units, if there is no serious multiple-use conflict which must be policed by public authority, if the land is economically capable of paying its own way in private ownership—if these four conditions are satisfied, there is no valid reason for insisting on continued federal ownership.

There is, however, a rather powerful movement at present to open up these lands to private purchase. Discussion of the pros and cons of public ownership cannot remain long on a theoretical plane; they very quickly involve decisions about specific tracts of land. We can fairly easily agree on the general conditions favorable to private ownership; then the question almost immediately becomes whether a particular tract of land meets those conditions.

What impresses me is that these criteria we have established would be very difficult to apply in specific cases. The matter of public and multiple-use values is an instance. In the case of the national parks and forests, that issue is fairly clear-cut . . . but how about the rangeland administered under the Taylor grazing act? That land was formerly the "unappropriated and unreserved" public domain. It was not selected by homesteaders, but neither was it selected for public ownership. It is a residual. Its federal ownership is an historical accident. Much of this land, furthermore, is very similar physically to the adjoining private lands. Can an advocate of public ownership be very convincing when he argues that multiple-use considerations are enough to justify keeping this land in public hands?

Or take the question of whether the land will bear the costs of private ownership. The federal range is generally of low productivity to begin with. In addition, over the decades of free use much of the value of this land was capitalized into privately-owned base properties. There is a good argument for a free grant to land-users, or for sale at a nominal price, possibly on a long-term sales contract at a low interest rate. In any case it is unlikely that the cost of the land would be high. The principal question is whether the land would pay the taxes assessed under private ownership. Here again the advocate of public ownership would have trouble making his case. The potential buyer—probably the present land-user—would maintain, of course, that the land will pay taxes. The burden of proof is on the man who says it will not. That man will be handicapped by the fact that, in many cases, we simply do not know for sure. Then, too, he is in the

* A discussion presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 8, 1947.

awkward position of opposing our national tradition of private ownership of agricultural resources. And the decision will probably be made in times like the present—when a series of wet years and high prices have conditioned our judgment. My guess is that most juries would decide in favor of the private operator.

The point I am trying to make is that these criteria which we have accepted may be excellent reasons for not selling federal land. At the same time, against determined opposition, they may be rather ineffectual in keeping land in public ownership. They can be theoretically sound principles and still have little real meaning when they are translated into administrative determinations. In a wide area of decision, the verdict on a specific tract will still depend on opinion, and there is no guarantee that it will be the right decision. Under present circumstances, I am inclined to think that a sales amendment to the Taylor grazing act might result in a good deal of unwise alienation.

In these marginal cases—these debatable decisions—would it be more of a mistake to pass land into private ownership than to keep it in federal ownership? I think it would, for a reason that is by-passed in the debate over federal vs. private ownership. Once in private hands, if the drouth and distress of the 1930's should be repeated, the land might again pass into public ownership—but this time to the counties. By and large, federal land administration has been reasonably satisfactory. If the federal agencies have not all been spectacularly adept in public land management, the states and counties have been less so. We may prefer private ownership to federal, but I take it that we would choose a permanent federal land ownership to the uncertainties of what we used to call the "new" public domain.

The process of alienation from federal ownership is a one-way street. Once land is sold or given to private owners, it will never return to federal ownership—unless we buy it all back. The land is now federally owned. There is much room for improvement in federal land management, but at least we still have the opportunity to make that improvement.

My point is that the issue of federal ownership vs. private ownership is not a simple either-or decision. There is no way of being sure that land will remain in private ownership. The only thing we can decide is whether or not it will remain in federal ownership. In deciding against federal ownership, we must recognize the possibility that we may be deciding in favor of another—and less desirable—form of public ownership.

DISCUSSION*

RAYMOND J. PENN

University of Wisconsin

Conservation of our land resources has been given rather general support by most of the farm groups as well as by many enthusiastic nonfarm groups. Likewise support for conservation comes from individuals with a wide range of political and social philosophies. Witness the writings of Ward

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Shepard, Arthur Moore, and Louis Bromfield. In fact, conservation has been something of a religion. It is like love, truth and providence. One is either for it or is written off the books as a bad person. I suspect that part of this general support for conservation results from the widely divergent meaning the term has to different people. The range in meanings is wide enough to allow (1) for orderly disinvestment of soils and (2) for tremendous investments in soil and water. The common thread of meaning can hardly be reduced much farther than "wise use of resources." And, of course, few people would concede that the use of resources they propose is not wise. The wise use of resources (or as we have so often heard recently "best land use") is essentially a valuation (judgment) made by an individual or groups of individuals (government) as to which of several alternative methods of land utilization is most desirable.

The burden of Mr. Weitzell's paper seems to be to develop a procedure by which all of the factors entering into the valuation can be reduced to monetary terms and by which the mathematics of marginal analysis can be used to determine the type and intensity of land use which would yield the greatest profit. Also the objectives indicate that the procedure would divide the benefits from improved land use between the farmer (firm) and society in such a way as to guide the development and operation of government conservation programs. The procedure seems to attempt the impossible. However, I am inclined to reserve judgment on this score until Mr. Weitzell has used the procedure to assist effectively in the decisions involved in the following situations:

(a) In southwestern Wisconsin the land is particularly susceptible to water erosion. The University and the United States Department of Agriculture recommend a system of "grassland farming"—so called because cropland is reduced to a minimum if not entirely eliminated. A farmer in the area must decide whether or not to shift to grassland farming. In most cases this shift involves major change in the livestock as well as crop enterprises.

(b) The Federal and interested local governments have received proposals to build several large multiple purpose dams across the Missouri River. Decisions have to be made as to (1) how much the governments can afford to invest in the proposals, (2) how much each of the governments should contribute and (3) how much of the cost should be allocated to electricity, flood control, navigation, and irrigation (some to be repaid and some not).

(c) A third might be added, namely, how much should PMA spend to give lime and fertilizer to individual farmers.

When I attempted to visualize the use of the procedure in connection with such specific situations as these, several questions developed.

1. The method Mr. Weitzell uses to measure benefits on a farm should provoke considerable disagreement. The favored alternative is "... measuring the increase in farm and forest production in physical units to be interpreted in terms of dollars, and in terms of the farm income through the budgeting process." I would suspect this alternative would require getting physical data on how many additional bushels of grain would result from

100 feet of terrace on a certain slope land and how many man and machinery hours are required to build the terrace. Then apply prices, get income, subtract cost of terrace, and add the difference to the expected income of the farm. In this calculation the yields of crops and pasture would primarily govern the value of the practice. Livestock enterprises would be practically omitted from the calculation. The alternative method suggested in the paper involved an estimate of total farm income with or without the practice. This seems to be the more desirable method since it takes into account the effect the practices will have on the other enterprises, particularly the livestock enterprises. Weitzell, however, discards this method because "... the job would be one of gathering basic data by cost account routes or periodic surveys." And, of course, this is not necessarily true. Farm management men use both the cost account route to get past experience or the budget to estimate the future. Both could be used in the analysis by Mr. Weitzell's procedure or the one he rejects.

2. I had difficulty following that portion of the paper dealing with the interest rates and their use in capitalizing streams of incomes and costs. Weitzell seemed to get into a rather embarrassing situation at one point. He weighs the advisability of using going rates of interest or the lower government rates. "Use of long-term Government interest rates, rather than private market rates, as a basis for discounts may be justified only on the basis of the social values involved." It seems to me that the lower government interest rates would be justifiably used as a subsidy. This is one method government might use to pay for social values expected. However, to use this lower rate in determining social values which in turn would justify still lower interest rates is something of a circle.

3. Weitzell recognizes that the procedure for determining social values is not well developed. However he seems to suggest placing monetary values on nearly all social values. Perhaps this is because marginal analysis works better with monetary values. The real question is whether or not it is possible to reduce most social values to monetary terms without being so arbitrary that the result will be meaningless. Perhaps we could make better use of our time by describing the alternatives for government action in whatever units they exist—death, foreclosure, inches of top soil 100 years hence, migration, hunger, war, etc. Our legislators and through them the people will place a monetary value soon enough when they decide how many dollars will be spent to straighten out a problem.

4. Each year our soil conservation programs come before Congress for appropriations. One important question is how much should the government invest and how much should be invested by individuals. The division of costs and benefits of a conservation program carried out on an individual farm is a particularly knotty problem as Mr. Dodd well knows by now. I had hoped the seventh of the papers dealing with private and public viewpoints would shed some light on this question. The concluding statement on the public-private discussion, however, illustrates that the discussion could not be used in this connection. "... the private and public viewpoints here described are not additive as separate segments of the evaluation process. Final evaluations should be based on one selected view-

point, which may be characterized as primarily private, primarily public."

5. Thus far we have made little progress in preventing the wide fluctuations in industrial activity. Decisions on the nature and amount of social investment should not be made without reference to the business conditions. Few alternative employment opportunities existed for the men and materials invested in conservation during the 1930's. The social cost of that investment was small. Since 1940 when the employment opportunities are abundant and resources are urgently needed we have used up our resources (disinvestment). This disinvestment was not seriously questioned when it was necessary to win wars or build urgently needed homes. Weitzell's paper gives weight to social valuation based on alternatives because of his emphasis on economics. However his attempt to place monetary values on social values, to measure value of practices from physical data, and search for normal price periods tend to discount the importance of the business cycle in the valuation process.

SOME CONSIDERATIONS IN BUILDING A CURRICULUM FOR AGRICULTURAL ECONOMICS MAJORS*

AUSTIN A. DOWELL
University of Minnesota

AN examination of curricula for majors in agricultural economics at different institutions reveals considerable variation in requirements at both the undergraduate and graduate levels. In some cases a fairly rigid program of courses and prerequisites is required, while at others considerable flexibility is permitted. At some institutions rather narrow specialization is encouraged, whereas at others a broad general training is favored. These differences suggest some variation in over-all objectives, but they probably reflect, to an even greater extent, differences of opinion as to the means by which the objectives are to be reached.

The views of anyone who attempts to discuss this subject naturally are colored by his experiences with students and with certain specific curricula. Hence a certain amount of bias is to be expected, and this discussion will prove to be no exception.

In this paper I propose to discuss some considerations in building a curriculum for agricultural economics majors in general rather than specific terms. This will be disappointing to those who would like to have the entire curriculum or curricula spelled out in detail including specific courses, course sequences, prerequisites and the like. But I believe the discussion will be much more fruitful if we consider general principles rather than run the danger of getting lost in a maze of detail and perhaps of losing sight of the main objectives or of confusing means with the ends sought. If reasonable agreement can be reached on the objectives, fewer differences will arise over the means.

The first step in this discussion, therefore, will be to indicate the kind of training that appears to be desirable for the well-trained major in agricultural economics. This will be followed by an attempt to determine, within rather broad limits, how much of the desired training can or should be obtained at the different educational levels.

It is obvious that the major in agricultural economics should be an economist. To be a well-trained economist he must have a

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thorough grounding in principles of economics. This is much more important than the number of applied courses in a given field.

The agricultural economist also should have a thorough grounding in the application of economic principles to agriculture. This means that he should have a working knowledge of and keep in contact with the various technical agricultural lines. He will be working with farm people and, hence, should be at home in such an environment. I would be the last to assert that a farm background is essential to success in this field. But I am convinced that it is an asset of incalculable value. Those without this background will have to put forth special effort to acquire the equivalent of this experience. Some are able to do this quite successfully, some with a fair degree of success, while others seem to be unable to make the grade. The classic example of the eastern city owner of a western sheep ranch ordering his manager over the telephone to "stop lambing" in the midst of the lambing season because lamb and wool prices had declined below production and marketing costs is a case in point. Older members of our group may recall the suggestion made at a farm meeting a couple of decades ago when mule prices were high that farmers should breed their mules to increase the number of work animals. I fail to see how one can talk intelligently about farm problems without a good understanding of farm work and farm life. By the same token, I do not see how one can expect to offer constructive suggestions for improvements in the marketing or in the distribution of farm products without a good working knowledge of marketing and distribution procedures.

It is of increasing importance for majors in agricultural economics to acquaint themselves with the framework of social and political institutions within which man must conduct his economic activities. Courses in fields such as psychology, sociology, political science, and constitutional law will provide some of the needed background.

World problems are now of such paramount importance to agriculture and to agricultural policy in the United States that well-trained majors in agricultural economics should have a reasonable understanding of our relationship to the rest of the world. The fundamentals of comparative advantage, foreign exchange, and other aspects of international trade have been stressed for many years, but recent developments have thrown these and other related problems into sharper focus than ever before. How can the United

States make its greatest contribution towards raising the living standards of the people of the world? Can this be accomplished by reducing trade restrictions, relaxing immigration barriers, exporting industrial equipment, investing in foreign plants, supplying relief to the needy, sending educators and technicians abroad to train others, or by doing any combination of these or of a dozen and one other things that have been suggested from time to time? This country will be obliged to reach decisions with respect to these and other matters, and these decisions should not be made upon the basis of narrow individual or group interest. Agricultural economists will be called upon increasingly to supply the kind of information that will enable an enlightened public to formulate sound national policies. Majors in agricultural economics should be equipped to make their contribution on this rapidly expanding front. This means that they should have some knowledge of the geography, soil, climate and other resources and of the people and their problems in the various countries of the world.

The agricultural economics major should be able to write and speak effectively. I am not contending that this is the only field in which these skills are desirable, but I do know that they are urgently needed by those who attempt to convey ideas to others. Facility of expression is desirable in the exposition of even the simplest ideas, and it becomes increasingly important as the ideas increase in complexity. It has the added merit of conserving the time of the one who is attempting to convey ideas to others. There are, of course, instances where preparation along these lines leads to a studied use of unusual words, or of peculiar sentence structure, or both. This is fatal to the conveying of ideas to all but a limited few who are familiar with the jargon of the author. The effective speaker or writer is one who has the happy faculty of presenting even complex ideas in relatively simple language. Training in the use of the written and spoken word should be included in the program of all agricultural economics majors.

In addition to the specific fields of learning which have been mentioned, the well-trained agricultural economist should have an adequate foundation in the natural sciences and in social sciences other than his major. In short, he should be a well-educated man, in every sense of the word, capable of effective citizenship in addition to special proficiency in his chosen field.

Some may say that I am expecting the impossible, that students

simply do not have the time for adequate training in so many fields of learning. I readily agree that this cannot be accomplished at the level of the bachelor's degree. Nor can it be accomplished in full at the level of the master's degree, or probably in many, if not most cases, even upon completion of the doctor's degree. What I have attempted to set up is an objective for our best-trained agricultural economists. I believe that is is not too far beyond the reach of those who lay their plans carefully from the time they enter college as freshmen until they complete the work for the Ph.D. Those who do not decide, until later on in their educational careers, to continue through to the Ph.D. may fall somewhat short of the ideal, and this probably will include, at least for some time to come, most of our candidates for the highest degree.

If it can be assumed that these are some of the more important objectives to be kept in mind in building a curriculum for agricultural economics majors, the next step is to determine what and how much of the desired training can or should be incorporated in the program at each educational level.

The mere recounting of the various fields of learning that would be useful to the agricultural economist suggests certain rather definite limits to the amount of specialization that is possible or advisable in the major field during the four year undergraduate course.

At many institutions the undergraduate students who wish to major in agricultural economics fall into three groups: Those who will complete their formal training with the bachelor's degree, those who will continue through the master's degree, and those who will go on for the Ph.D. The desired amount of concentration in the major at the undergraduate level will be different for each group, and it will also be different for individuals within each group because of variations in background and individual interests.

Relatively little time should be devoted to specialization at the undergraduate level for students who plan to continue through the Ph.D. Their time should be devoted largely to obtaining a good background in the natural sciences, in technical agriculture, in principles of economics, and in social sciences other than the major and minor. They should take sufficient work in English and public speaking to be reasonably effective in these lines, and they should have a satisfactory background in mathematics and statistics. Those who are to devote their time to research in prices or statistics

should obtain all the mathematical background and statistical training they can get. The general run of students majoring in agricultural economics should have enough contact with statistics to know how to use them and to realize their limitations. They should know that statistics are extremely valuable tools but that they are not a substitute for analysis. Some knowledge of the geography of the continents of the world also is highly desirable. This broad training will leave relatively little time for specialization. Somewhat more time for concentration in the major field will be available to those who enter college with satisfactory farm experience and with good high school preparation in such subjects as English and mathematics, than for those who enter with greater deficiencies in these areas.

A somewhat higher degree of specialization at the undergraduate level is desirable for those who complete their training with the master's degree than for those who go on to the Ph.D., and still greater concentration in the major field will be necessary for those who go no further than the bachelor's degree. At most institutions the latter probably includes most of the undergraduate majors in agricultural economics, and, if so, it is here that the principle interest in curriculum building for undergraduates will be centered. If these men are to function as agricultural economists upon completion of the bachelor's degree, they must have sufficient training in the principles of economics and in agricultural economics to enable them to give a good account of themselves in the various jobs that will be available to them. Job opportunities for men with such training include county agent work, professional farm management, work with lending institutions and various kinds of commercial jobs. In building a curriculum for these students, a balance must be struck between the training to be offered in the major and in the other lines of work. I am of the opinion that most of the work during the freshman and sophomore years, at least, should be required to insure a broad foundation in chemistry, botany, entomology, zoology, bacteriology, mathematics, English, and some of the important branches of agriculture such as soils, agronomy, animal husbandry, dairy husbandry, poultry husbandry, horticulture, and agricultural engineering. A good course in principles of economics also should be required during this period, preferably during the sophomore year. Some students probably will be able to get most of the necessary training along these lines out of the way by the end of

the sophomore year, but more often some of it will be carried forward to the junior or even senior years. The background of the student will have an important bearing upon what and how much foundation work will be needed in fields other than the major and minor. Hence, a certain amount of flexibility is necessary at this point. By and large, I believe there is more danger of too much and too early specialization than there is of too little and too late specialization.

On the assumption that the work in the natural sciences, mathematics, and principles of economics and a considerable part of the work in technical agriculture and in English is completed during the first two years, the junior and senior years will be available for greater concentration in the major. One plan which appears to be fairly satisfactory is to allow the student to select a major and a minor combination but to require sufficient course work outside these fields to insure a well-rounded program.

In building the program for the undergraduate major in agricultural economics, care should be used with respect to prerequisites because of the limits of the four year program. For example, it usually is not practicable to require these students to take a course in principles of accounting before permitting them to take a course in farm accounting, or to take a beginning course in statistics before permitting them to take agricultural statistics. If too many prerequisites are required, the students may have little or no time left for work in the major field.

Furthermore, I believe that narrow specialization within the major field is undesirable at the undergraduate level for the great majority of our majors in agricultural economics.

Those who have had long teaching experience will have in mind not one but many students whose interests changed sharply during the training period. In fact, it is common for the student's interest to change as new areas are explored. In such cases, early specialization would have been a serious mistake because it would have been made without adequate information. Then, too, many students do not obtain employment in or do not remain in the field which would have been their choice for narrow specialization. Students commonly enter the employment market shortly after completing the requirements for the degree. They are inclined to accept, from among the employment opportunities that are available to them at the time, the one that appears to offer the greatest possibilities and this

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may or may not be in the field they would have selected for narrow specialization. Even if the student enters the narrow field of his first choice, he may subsequently be attracted, for financial or other reasons, to a position outside this field. Here again, a well-rounded program in agricultural economics would have been much more useful to the student than narrow specialization.

Undergraduate majors in agricultural economics who subsequently carry their training through to the master's degree can devote somewhat more time to the acquisition of a broad educational background and less to specialization in the major field during the four undergraduate years than those who complete their work with the bachelor's degree. For example, one who expects to devote his time to study of the economics of soil conservation may find it highly desirable to take some additional courses in soils or in agricultural engineering. More work in mathematics or in English may be desired. Here again, a certain amount of flexibility is desirable to accommodate the differences in background and interests of the students. At the same time, they should have sufficient foundation work in agricultural economics to proceed satisfactorily with graduate study.

The greater the amount of flexibility allowed to meet the requirements of individual students, the more important it becomes to supply competent faculty advisers. This probably is more important at the undergraduate than at the graduate level, although the difference is largely one of degree. The adviser must familiarize himself with the background of the student and of his special interests, and then assist in building a curriculum that best meets his particular needs. He should keep constantly in mind the desirability of a broad background outside the field of concentration, and, for most students, of a reasonably broad training rather than narrow specialization within the major field.

Requirements for the master's degree for majors in agricultural economics vary considerably from institution to institution. At the University of Minnesota, graduate students may qualify for the master's degree under either of two plans. Plan A calls for a minimum of 27 quarter credit hours of course work, of which two thirds should be in the major field of interest and one third in the minor, together with a master's thesis. Plan B calls for a minimum of 45 quarter credit hours of course work of which from 21 to 27 credit hours shall be in a single field of concentration, with 9 quarter

credits in the field of concentration or in related fields requiring written reports representing the quality but not the range of the master's thesis. Plan A is recommended for those who are not certain to go beyond the master's degree and who expect to engage in research work where they will be required to analyze data carefully and to present the results in satisfactory form. For many students who go no further than the master's degree, the extra course work together with the three term papers appear to be quite adequate. There is also some merit to the contention that students who continue through to the Ph.D., and hence will be required to present a Ph.D. thesis, will get more desirable training by substituting additional course work for the master's thesis.

All graduate students majoring in agricultural economics should have at least two quarters of advanced general economics and some work in economics of agricultural production. In addition to these courses, candidates for the doctorate should have at least two quarters of graduate seminar in economic theory.

While most of the time of the graduate student will be devoted to his major and minor fields, he should, except in unusual cases, be cautioned against specializing too narrowly. Concentration in a broad field is quite different from narrow specialization within that field. Reasons for avoiding narrow specialization on the part of the graduate student are much the same as those advanced previously for the undergraduate. His interests may change as he explores new fields or he may not find or accept, even if available, a job in the field of narrow specialization. The master's and doctor's theses offer sufficient opportunities for intensive specialization for most students.

Flexibility in the choice of courses is just as important at the graduate as at the undergraduate level. It is desirable because of sharp differences in background and in fields of interest. However, this flexibility should not be carried to the point of narrow specialization, but should meet the requirements of a broad training. Here is where the experienced adviser will be able to render invaluable service to the student.

It seems to me that the time has come for reexamination of the rigid foreign language requirements for advanced degrees in agricultural economics. One of the requirements for the Ph.D. at many universities and colleges has been a reading knowledge of two foreign languages, usually French and German, although a certain

amount of substitution of other languages is common. There probably were good and sufficient reasons for the language requirements when they were first adopted. We do not need to labor that point here. The question is whether the requirements should be continued in the years ahead. It is my opinion that relatively few agricultural economics majors who completed their training during the last decade or so have made use of either foreign language after the requirements for the degree were met. For the great majority, it involved the investment of a large amount of time and energy, from which they received little beyond the mental discipline involved in preparing for the examinations. It seems to me that much of this time could have been more profitably devoted to additional course work in the major, minor, or other fields. A particular foreign language is highly desirable for a student who will subsequently devote considerable time in the country in which that language prevails.

A particular foreign language also is desirable for students whose subsequent work carries them into fields in which much work is being carried forward and published in that language. However, these are exceptional rather than typical cases. Even though more of our graduate students probably will obtain employment abroad in the future than in the past, the great majority will continue to work in the United States, and their employment will be such that they will make little or no direct use of a foreign language. Furthermore, as we plan for the future, I feel certain that workers in a steadily increasing number of countries of the world will make contributions in the various branches of agricultural economics so that a reading knowledge of two foreign languages, regardless of the ones selected, will give the agricultural economics major access to a steadily decreasing proportion of the thinking of a world on the march. The only solution to this problem would be to require a reading knowledge of a steadily increasing number of languages, and that does not appear to be practical due to limitations of time.

I have heard many experienced agricultural economists who completed the requirements for the Ph.D. express the opinion that they should have taken more work in principles of economics, or in economic theory, or in mathematics and statistics, or in English and public speaking, or in other lines, but I have heard very few express regret that they did not devote more time to study of foreign languages. For these reasons, it seems to me that we could well afford

to use greater discretion with respect to the foreign language requirements.

A heavy responsibility rests upon the shoulders of the teacher who is engaged in the training of agricultural economists. The teacher's responsibility does not end with the exposure of the student to a specific course or courses. He should do something other than cram his students' minds full of facts and figures, and train them to become special pleaders for agriculture. His primary function is to stimulate the thinking and extend the mental horizon of his students. In short, the teacher should develop real men, men who can think clearly, and who put general welfare above narrow group or individual interest.

TRAINING AGRICULTURAL ECONOMISTS FOR PUBLIC CAREERS*

K. H. PARSONS

University of Wisconsin

AS I have tried to think my way through the subject of this discussion, I find myself digging into questions of methodology. My remarks, therefore, are not about courses, jobs, and the problems before the various agencies that support public careers for persons trained in agricultural economics. Instead I have attempted a presentation of some of the issues, the deeper issues as I understand them, which I have encountered as I have thought about training students in agricultural economics for public careers. Even if the outcome should be different from that which was originally anticipated when the program was projected—my only defense would be that methodology is all that can be taught students of economics anyhow.

The over-all question in my mind is how do we assist or stimulate a student to work out a viewpoint of his own. To me this is the essence of graduate work. I notice that some professional workers in agricultural economics get along reasonably well with a minimum amount of advanced training. But most people seem to need 3 to 5 years of graduate work in economics and related fields. But the critical point, I judge, is not the time spent but the viewpoint developed. How comprehensive the viewpoint needs to be, depends upon the work to be done; evidently it should be sufficiently broad to embrace the main issues in the work undertaken—to give comprehensive references for dealing with whatever problems fall within the range of the job. My own observations of the work of graduate students has led me to attach increasingly greater importance to the programs of undergraduate study. It is here that students establish their main reference points for dealing with later issues. For most students the day is too late to take background courses after they have enrolled in graduate schools.

I. The Function of Agricultural Economists in Public Careers

A Comment on Methodology

I believe we reasonably may classify the functions of agricultural economists in public careers as either educational or investigational

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—or if you prefer, teaching or research. I am unable to see any difference, in principle, between resident and extension teaching. The essential function of each is to supply facts and ideas to people to help them to be informed citizens and conduct their affairs in a responsible and intelligent way.

The agricultural economist as an investigator furnishes reliable generalizations of fact or principle. As investigator the economist may function in a research bureau or an action agency—but the function of investigation is not fundamentally different; what differs is the problem and possibly the objectivity and thoroughness. But investigators should be considered separately from administrators. The findings of investigators are a part of the resources of educators. Similarly these generalizations serve as ingredients for judgment of policy formation and administration.

In focusing primary attention upon the intellectual function of agricultural economists rather than upon the agencies or institutions and their problems in which economists may work, I am trying to achieve some simplification of our problem and at the same time set up the issues in a way which has some inherent relevance to a training program.

I have come to believe that the strategic questions in both teaching and research in economics are rooted in the nature and function of judgment. At least, I see clues here which may help me simplify the issues in advising students as well as in conducting my teaching and research work.

A judgment, as I understand the function, is a molding of idea and fact into a conclusion which is acted upon.¹ Any judgment has some theory, some ideas, as the major premise, and statements of fact for the minor premise. The major premise is, in scientific reasoning, a series of propositions, in principle the whole body of relevant theory. In common sense judgments the theory may not be articulated at all; rather the ideas are just accepted common sense. Similarly with facts; in carefully formulated judgments the facts are critically examined for relevance to the issue or problem at hand. Scientific facts are generalizations, arrived at through reliable inquiry. In common sense judgments the facts are particular to the immediate occasion. But within the whole gamut of judgment there is this separable function of idea and fact.

If this be accepted, tentatively at least, as a rough elementary

¹ John Dewey, *Logic, A Theory of Inquiry*, Henry Holt & Co., 1938 for ex. p. 323.

statement of the theory of judgment, some of the relations to education can be inferred readily. If we would actually instruct people, the ideas which operate in judgment formation are just as important as the facts used. The ideas, or the theory, establish the connections of relevance. In extension work, if we give farmers facts alone, it would seem that there would be great likelihood of misuse of fact and consequently faulty judgment. We must somehow permeate and improve, with reference to the point at issue, the common sense ideas about the situation.

In our teaching, following out this hypothesis, we would need to help develop students' systems of interpretative ideas as well as give them relevant facts. Actually, for a student I believe, it is more important to help him re-orient his thinking than to try to give him a whole bale of facts; if he can be taught the value and importance of accurate information and where such can be secured, we will have done our part of the educational task.

In sum, the suggestion here for our training programs, is that we train teachers by helping them see: (1) the nature of the judgment function, and (2) work out with them a body of theory and the requisite knowledge which they need to make their contribution to the judgment process. Our part of this task is to assimilate and, if possible, add to the relevant economic theory and related ideas, and the more important relevant generalizations of fact about the economics of agriculture, and help students master them.

To the extent that students enter a career of investigation, the methodology of research becomes essential. The development of research theory is a prerequisite to adequate findings of fact. But most investigators will no doubt concentrate on developing warranted generalizations of fact. Research in economics, as I visualize the task, requires a combination, on the theoretical side, of economics, statistics, and logic. Since most research in agricultural economics is done on a problem basis, research workers need to have a grasp of the theory of other social sciences as well. The point to be made here, however, is methodological. The findings of research in the factual side are generalizations of fact, which generalizations may be the ingredients of judgments in many different contexts according to the relevance of the findings of fact to problems and situations. This phase of the argument may be summarized by the observation that the research work in agricultural economics, like all scientific investigation, is intermediary and func-

tions through use in judgment, both in the educational process and in the resolution of practical problems.

Perhaps the essence of the matter for the training of students may be summarized by saying that it would seem that all students who expect to go into public careers in agricultural economics should have some clear cut ideas of the way in which education and investigation are related, and the way in which they operate in society. In my advising students, I have given more thought to the problems of training research workers. For students who have a bent in this direction, I usually advise two years of work in mathematics and one year of work in logic, as well as a considerable amount of work in general economics, as a part of their undergraduate course work. This should give a basis for both graduate work in economics and for comprehending the main issues in research theory and statistics.

I have tried to suggest that we need to take account in our training programs of the fact that social affairs in a democracy move forward on the judgments of people in all the various positions in society—head of a business, citizen, public administrator, etc. Furthermore, an awareness of the diversity of issue and perspective in judgment needs to be developed in our students. If facts are supplied people to improve their judgments, these generalizations of fact need to be formulated in such a way as to have inherent relevance to the problem at hand. A market administrator operates in a different perspective than does a dairy firm or a producing farmer in the market regulated. By the same token, the nature of judgment should serve as a warning against exclusive reliance on facts in an educational program. Where the facts are allowed to speak for themselves, they speak through some unuttered theory. This is an invitation to prejudice. Where education or advice runs solely in terms of ideas or theories without correlative fact, it invites construction of Utopias or the reverse; it is through judgment that theory and fact are harnessed together in dealing with social affairs. An awareness of this point seems to me to be the beginning of wisdom for those who would follow responsible public careers in agricultural economics.

II. Agricultural Economics among the Sciences of Agriculture

Most of us who teach courses in agricultural economics are in colleges of agriculture; these same institutions are the principal

source of our graduate students. Also, much of our research work involves close association, if not collaboration, with investigators in the other departments of the college. In view of all these associations, I find it rather puzzling that so little systematic attention has been given to the problem of the relation between the physical and the social sciences of agriculture. In almost every aspect of the economics of agriculture, the economic is closely involved with the technological—in farm management, in soil conservation analysis, in marketing and processing, and in many more. It seems to me that we need to go further than the conventional answers such as: agronomy tells us how to grow crops—economics analysis tells us which crop to grow; or, economics accepts the technological processes as given and is concerned with operating costs and returns. We have had such insights for a long time, but there is widespread confusion and even distrust between workers in agricultural economics and what we may variously call the technological fields or the physical sciences.

This relationship of the social and the physical sciences seems to me to present some of our really urgent problems in training students for public careers in agricultural economics. As I have thought about it, three or four issues appear to be of major importance.

First, I remind myself that economic analysis centers fundamentally upon the activities of valuation and organization. Economic activity centers in the field of choice, a volitional activity.

Second, physical things are caught up into social activity as uses, not as things. We economists are not concerned with the physical properties of things, except as these properties influence the uses, or usefulness of things. Fundamentally, we value the uses and devise practices for systematizing or organizing our activities with reference to these uses.

Third, the distinction between physical and social is essentially a polar one, a matter of degree, not a simple dichotomy. The most pervasively social is the concrete immediate situation of use and enjoyment; the physical is essentially the abstract, in which qualities of immediate usefulness are ignored. The same distinction can be made in terms of volition: the range is from the act of choosing (volition)—of pure choice, as found in economic theory—to the completely non-volitional involvement of physical interactions.

Actually, it now seems to me, most of the scientific work in agri-

workers in agricultural economics who need most a wide general training in social science in their graduate careers.

In my own advisory work I am feeling my way on the questions of supplementary work in social sciences. But I favor strongly work in public administration for students who are likely to have administrative responsibility in the development of agricultural economics or in public control programs. This applies especially to foreign students who are preparing to return to their native lands to help establish the work there. Sociology is essential for students whose work will take them into analyses closely related to the family, as studies of tenure and farm labor. To give a foundation for analysis of public policy, we should have some fundamental grounding in the theory of valuation through the study of social ethics and certain aspects of jurisprudence, if such courses can be found. Work in law appears to be virtually necessary for anyone whose work will take him into analyses involving property relations in the public perspective, as tenure and credit policy.

These remarks on supplementary courses are only suggestions at best; but as I make these references I am haunted by one overshadowing question. How far can students go in integrating their work in economics into other social sciences unless we as faculty members in the several departments actually understand the connections between the disciplines. If we cannot integrate the fields, can they? It is not enough to send our students into a succession of classes in the various social disciplines. This theoretical integration remains to be done, as far as I can see, and this can be our opportunity; cannot our problem approach be turned into a vehicle of unification? I think it can.

Reference was made above to the need for all students of agricultural economics to study general economics. I accept the general principle that if one would be an agricultural economist, he must first be an economist. This means a great deal of concentration on general economics including economic theory. In view of the evident fact that our economy is becoming more and more industrialized, our students need to understand a great deal about corporations, labor economics, competitive and monopolistic price theory, monetary theory, fiscal policy, and international trade. How many of these can be crowded into a graduate program presents a problem with every student. But I find this problem less difficult for students than securing an adequate comprehension of relevant eco-

conomic theory. General economics is no longer bound together by any widely accepted core of doctrines serving the function in this respect of the value and distribution theory of 40 years ago.

Furthermore, the creative work in theory is being done at the frontiers of economic adjustment in our unstable industrial economy. Our devotion to problems leads us in agricultural economics to work on problems which involve more interrelations with other social sciences than most work in economics requires. The close association with public programs of various kinds requires that we actually analyze the very structure of society much more than is done implicitly in the usual courses on price theory, etc. The result is that our students may not find their particular fields of work embraced in any meaningful way in the general economic theory which they study. As a constructive suggestion on this point it seems to me that we in agricultural economics who accept the proposition that agricultural economists must also be general economists have two alternatives: either accept economic theory as it is taught as the basis reference point, or extend our own thinking into the domain of general theory as a supplement to round out a relevant general theory. I believe the latter is the more feasible alternative at this time.

IV. *A Comment on Prospective Issues*

Events of the recent past have raised several questions about the future of a public career in agricultural economics. As have I talked to persons in the Federal service, I have sensed a deep uneasiness about the possibility of fundamental work in broad economic and policy issues. It is possible that we are going through a fundamental adjustment on the whole conception of the functions of social scientists generally in the Federal service. I feel compelled to note these occurrences, but I must also confess that I have not been able to work out any systematic and satisfactory interpretation of them. In concluding this paper, therefore, I shall make a few more or less random comments on the situations which seem to me to present issues in a training program.

Our work in agricultural economics has grown from work on problems, problems of farm people. This I consider a fortunate circumstance. But it has had some drawbacks. For one thing, this problem approach is readily converted into a "service" function. Farmers and their organizations have brought their problems to us, and

these needs have been so immediate and pervasive that too many of us, I fear, have spent our time at these tasks. The results have been twofold: (1) that our work has tended to be evaluated by its contribution to the service of immediate problems, and (2) that we have not as a group got around to generalizing very many of our investigations into genuinely objective and fundamental research investigations.

The balance of power and importance in our economy is shifting away from agriculture. Agricultural economics was conceived as a field of concentration by young men who were reared in the Granger days of the last century. Our association was formed at the close of the last war. For some 20 years subsequent thereto we spent a great deal of effort trying to re-establish a degree of prosperity to agriculture which presumably prevailed before World War I. Our debates 15 to 25 years ago over whether agriculture was the foundation of national prosperity point to the same general conception of a nation with a rural foundation. We emerged from World War II an industrial and urbanized nation, with our public debates centering on full employment, investment, international trade and fund balances, etc. We are getting, I believe, a reflection of this shift toward an urban economy in our congressional debates and policies and appropriations for agriculture.

When this latter point is taken in conjunction with the considerations of the shift in power within our political and economic system generally, we see that we may actually be facing a situation in which our work may be re-evaluated on the scale of public value. The service-problem approach may lead us into working primarily or even exclusively upon the essentially private problems of farmers and their organizations. Work on private problems, especially where the work is done on representative general problems, is laudable enough. But due to changes in the over-all structure of the economy, the farmer interests are inescapably caught up in this complex of collective action in the 20th Century. By too close attention to day-by-day problems we may be failing farm people at the points of greatest need.

If students are to be trained in ways that will help them do fundamental research on the relations of agriculture to these basic conflicts and to public actions upon them, they need some conceptions which sustain them in critical moments and which help direct their attention to positive courses of action. They will be called upon for suggestions about how something constructive can be

done to lead to the conciliation of conflicts and to creative public action. This requires comprehensive work in social science, supplementing economics, especially on the procedural side, as in law and public administration. But I am troubled at this juncture by the realization that much of our training in the theoretical aspects of economics in recent decades has not really led to a constructive philosophy regarding action within an on-going society. I am thinking at the moment of the cynical doctrine that economics is after all simply a method of analysis designed to maximize the effectiveness with which scarce means are used to achieve given ends under given conditions of technology, wants, etc. The doctrine is cynical in the effectiveness with which it clothes the holder of this view with rationalization for irresponsibility in the face of urgent social circumstances. Such a view would not only fail to give the devotees of the doctrines any real support to think courageously on dangerous issues, it may also serve as a perfect rationalization for accepting a strictly "service" viewpoint in work on economic problems of agriculture.

The emergence of action agencies (administrative commissions) as an instrument of economic adjustment also presents issues which students of agricultural economics may well consider. There appears to be fundamental differences in the way in which private and public interests are related in the administrative and legislative processes. Legislation is achieved by coalitions of interests to form a majority vote. Actually, therefore, it is virtually impossible in a democracy that legislation favorable to one interest group can be passed without active support of that interest. Yet, once the law reaches the administrative level it cannot be executed as the private property of that particular interest group. To put the matter more specifically, farm legislation can only be achieved by farmer-support: but the legislation cannot be administered solely to promote the farmers' interest. The public objective of price support programs cannot be simply higher prices for farmers; there must be some public problem created by low farm prices to justify price supports above levels otherwise prevailing. This leads to confusion, if not consternation, among pressure groups which have mastered the techniques of legislative lobbying. But both the theoretical argument and the evidence from experience lead to the conclusion that unless programs are really administered in the public interest they wither up.

This has a bearing on the future directions of careers in agricul-

tural economics. The Department of Agriculture has been entrusted with many administrative programs; yet if these were to be run simply by farmers' advocates for farmers' advantage, public support for them will surely be withdrawn—and we should expect the Department of Agriculture to wither up as has the Department of Labor. These issues tie back, then, to the question of private-service to agriculture versus a public-service, and they seem to me to be equally applicable to the land grant colleges as well. For reasons previously indicated it seems imperative that creative and fundamental research work be continued both at the state and national levels on the broad public issues in the economics of agriculture; this includes critical analysis of action programs, operating relations of farmers to corporations and labor unions, the significance of economic power and public controls, taxation, planning, etc.

I think we can accept any challenge which requires that work in agricultural economics serve the public interest. No group has more consistently served the public interest than agriculture, and no professional group that I know of has had a higher sense of public purpose than this one. But if we are to continue in the great tradition of creative and constructive social thinking to which we have been dedicated, our analysis must be broadened out to include the great questions of social organization in the emerging age of collective action.

TRAINING AGRICULTURAL ECONOMIC MAJORS FOR BUSINESS CAREERS*

G. B. Wood
Purdue University

A COLLEGE course of study designed to train people for business careers should have two primary objectives in mind. The first should be to prepare the student to get a job upon completion of his formal training. The second should be to provide the student with a background which will enable him to advance as rapidly as possible in the business or occupation of his choice.

Every student should have something to sell when he asks for a job. Technical departments in colleges and universities have for years trained students in specialized fields so that they might enter a particular type of business or department of a business upon leaving school. While the market for such students has not always been assured, these students at least have had the advantage of having something to sell when the prospective employer asks "What can you do?"

Agricultural Economics courses, in the main, have prepared college students to enter several fields—farm organization and operation, business, and graduate study. Experience shows that this program has been very successful over the years. While the future market for graduates in farm management seems favorable, no one knows for how long departments may train and place graduate students to advantage at the present mass production rate. At least there is reason to believe that agricultural economics curricula should be broadened to provide specialized training which agricultural and related businesses can use to advantage.

A fundamental question may be raised at this point. What can an agricultural economics department contribute in training a student for a position in the dairy industry, the poultry industry, or the feed industry that a commodity department cannot do as well or better? Why should a dairy concern, for example, look to an agricultural economics department instead of a dairy department for a man? It is interesting to note that a large number of the executives in present day agricultural businesses are men who were trained in technical and not economic subject matter. The

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 8, 1947.

reason for this situation probably is that the technical department had the advantage of giving the student a "trade" to sell upon graduation. It was this "trade" which gave many business executives of today the start or toe-hold they needed in their respective concerns. Once they had a start, their ability, training, and experience enabled them to make progress toward positions of greater responsibility. If agricultural economics departments plan to train students for business careers, it seems imperative that they give the student something to sell when he leaves school.

When employers are looking for more than technical training then they hire a college trained man or woman. They want students who have a background of technical knowledge and some understandings of the technique of human relations. The "trade" will help them get the job but it takes more than that to make a person a success in his job. Very few men have lost jobs because they possessed too much technical information. Many have lost jobs, however, because they did not understand or did not practice the basic principles of living and working with people. The second responsibility, therefore, is to help students acquire a background which will help them make a success of their job. Most college curricula encourage students to sample courses in related and in non-related fields in order to broaden their understanding of social and economic problems. Students are also encouraged, but in too limited a way, to participate in various types of college activities. Such contacts serve to give students some understanding of their responsibility and their obligation to live and work with people with some degree of success. Colleges and universities probably make their most unsatisfactory contribution in the field of human relations.

Some persons will take exception to the order in which these two objectives are stated. The order is of minor importance. What is important, it seems to me, is to recognize the size of the job which needs to be done in the training program. Moreover, we need to develop in the student mind a professional attitude toward a business career. In this connection, I was interested in a statement made by Paul Garrett, Vice President of General Motors Corporation, when he addressed the graduating class of Whitman College this past June. Looking back at his graduation days he said, "To me at that time business was something you just drifted into if you were not competent to take up one of the recognized professions

or if all you wanted in life was money. It would not have occurred to me that an ambitious young man of ideals and vision might turn to industry for an ideal life profession."¹ Agricultural economists can take a cue from the medical, law, and engineering schools which have done so much to develop the professional attitude. Students should have no apology to make when choosing a business career.

*The Market For Graduates in Agricultural
Business Administration*

Unfortunately, most college instructors know too little about the market for students trained in agricultural business administration. Further study is needed to sharpen the focus of courses planned in this area. Two markets for agricultural business administration trainees seem to stand out as holding considerable promise of immediate development. One is in the field of accounting, and the other is in the field of marketing and merchandising.

All business concerns require some accounting assistance. Not every one, of course, can afford to hire even a part-time accountant. There is reason to believe, however, that an accountant trained in agriculture may be preferred over an accountant trained in a regular business school if the prospective employer is an agricultural or related business concern. However, they undoubtedly will continue to select their accountants from regular schools of business. This may be the place where they should get them.

The rapid growth and competition of businesses which are trying to capture the farm market leads one to believe that men trained in marketing and merchandising could be placed to advantage. Most agricultural economics departments are already offering work in marketing. If this option is developed it would be desirable to broaden the plan of study to include courses in advertising, salesmanship, and merchandising. Most businesses can always use a good salesman, and larger businesses are frequently in the market for advertising, marketing, and merchandising specialists. Again, students trained in marketing and merchandising would have something to sell upon graduation.

Other fields of study which may be developed as the market

¹ Garret, Paul, "If I had Your Chance" an address delivered at the Eighty Eighth Commencement of Whitman College, Walla Walla, Washington, June 8, 1947.

permits are personnel administration, finance and credit, and business relations. It is not likely that a small agricultural business can afford to hire, or would need for that matter, a specialist in any one of the above fields. The small business likely will prefer a "jack of all trades" who has some specialty. Larger businesses, such as the meat packers and national dairy companies, may prefer students who have highly specialized training. Most of the graduates in agricultural business administration likely will be placed in small to medium sized agricultural businesses. In any case, the decision to hire or not to hire may depend more upon the individual than upon the degree of specialization.

Agricultural economics departments should not overlook the opportunity, in planning their curricula in agricultural business administration, to offer business training (service courses) to majors in technical or commodity departments of the college or university. When their graduates go into business, this training will help them materially as they are given management responsibility. Hence, an effort should be made to encourage commodity departments to add agricultural business administration courses in their plans of study.

In order to get a better picture of certain aspects of the market for students trained in agricultural business administration, I asked the executive secretary of each agricultural trade association in Indiana to send a special questionnaire to 25 of its leading members. Two other groups not in trade associations were also contacted, making eight groups in all which returned questionnaires. Ninety-five usable replies were received from owners and executives-bankers, cooperative managers, dairymen, farm machinery dealers, feed dealers, food processors, poultrymen, and others in miscellaneous businesses. While the sample is small and should not be considered typical for all industries or states, the results do show what these leading Indiana businessmen rank from highest to least importance in hiring college students for careers leading to management responsibility in their particular businesses.

Businessmen were asked to rank the importance of 11 factors which would influence their decision when hiring college graduates for positions leading to management responsibility in their business. A summary of their opinions is shown in Table 1.² There was al-

² The ratings shown here are based on the simple averages of the ratings given each factor by the respondents. The factor receiving the lowest average rating was given the first rank and so on.

most a uniform choice among the business groups of character, ability to work with others, personality, and self confidence as the first four factors. Such factors as enthusiasm, attention to details, appearance, and business experience rank ahead of scholarship which was listed in ninth position. This rank is not a surprising one. It suggests that in the minds of many businessmen there is no necessary relation between scholarship and business success. No businessman will hire a man of sub-standard ability if he can help it.

TABLE 1. IMPORTANCE OF EMPLOYMENT FACTORS AS RATED BY 95 INDIANA BUSINESSMEN, BY INDUSTRY GROUP, 1947

Employment Factor	All Groups	Banking	Co-ops	Dairy	Farm Mach.	Feed Grain	Food Proc.	Miscellaneous	Poultry
Character	1	1	1	3	1	1	1	1	1
Ability to work with others	2	2	3	1	2	3	2	2	2
Personality	3	3	2	2	3	2	3	3	3
Self Confidence	4	5	4	4	5	5	4	4	4
Enthusiasm	5	8	5	5	4	4	5	6	6
Attention to Details	6	11	6	6	7	6	6	7	5
Appearance	7	4	8	7	6	8	10	5	10
Some Business Exper.	8	7	7	9	8	7	7	9	7
Scholarship	9	7	10	10	9	9	11	10	9
College Courses Taken	10	10	9	8	10	10	9	8	9
College Activity Background	11	9	11	11	11	11	8	11	11

However, he has learned from experience, apparently, that some students because of their youth and other factors attach more importance to social activities in college than they do to grades. As such students settle down on the job their natural ability gains a momentum which enables them to hold responsible positions in business organizations. The range among the business groups in rating enthusiasm and attention to details in fifth and sixth places was very narrow except for the bankers. This group rated the enthusiasm in eighth position and attention to details in the last or eleventh position. Apparently, bankers feel that if they get an honest employee it is not too serious if he makes a few mistakes!

It is not until we get to item ten on this list that we find college courses taken. The fact that nine other factors are considered more important than the courses a student takes in college gives some support to the point made earlier that businessmen look for more than technical training when they hire a college graduate. This limited survey suggests that employers want students who primarily are able to live and work with people. Many employers feel that the graduate who will be hired should be trained in the business methods and techniques of the firm before he can progress in the business. Hence, many concerns provide elaborate training pro-

grams of their own for new personnel. For this reason they may be inclined to rate college courses lower than most professors would rate them. If we are to learn anything from this survey, it is that we need to build more human relations into our college curricula. If this is done we will come closer to training students who can adapt themselves more readily to the demands of the business profession.

All business groups rated a student's college activity background low, with six groups out of eight rating it last. This may mean that this question was not clearly understood. Although they rated this factor last, the businessmen contacted in the survey rated character, ability to work with others, personality, and self confidence as the four most important factors. Surely these four factors are recognized for their importance in any college activity. Too few instructors have a good idea of the college activities in which their students participate. This is unfortunate. The aggressive student will move out on his own. What is needed is a better planned program for the student who is reserved and less likely to participate in student activities without special encouragement.

*An Adequate Training Program in Agricultural
Business Administration*

Although these Indiana businessmen rated college courses low in the list of employment factors, they did have some idea of the importance of 13 courses which might be offered in preparing college graduates for positions of management responsibility in their business.

All groups together rated economics the number one course (Table 2)³ The range among the industry groups shows that four groups rated it first while the cooperative managers rated it eight. This suggests that these businessmen expect agricultural colleges to train students in the basic fundamentals of economics. It is interesting to note that salesmanship ranked second in importance. The dairy and farm machinery groups ranked it in first place while food processors ranked it eight. Selling is a very important phase of business as was indicated by the fact that all groups ranked it high in importance. This may indicate also that businessmen are in-

³ The ratings shown here are based on the simple averages of the ratings given each factor by the respondents. The factor receiving the lowest average rating was given the first rank and so on.

terested in students who are trained in salesmanship. Accounting was rated third in the list of college courses. The range of rank for accounting was not as wide as for the first two courses, with feed dealers ranking it second and farm machinery dealers ranking it eighth. The rank it received also indicates that there is a possibility of placing students who are trained in accounting.

TABLE 2. IMPORTANCE OF COLLEGE COURSES AS RATED BY 95 INDIANA BUSINESSMEN, BY INDUSTRY GROUP, 1947

College Course	All Groups	Banking	Co-ops	Dairy	Farm Mach.	Feed & Grain	Food Proc.	Miscellaneous	Poultry
Economics	1	2	8	3	2	1	1	1	1
Salesmanship	2	4	2	1	1	3	3	3	4
Accounting	3	5	4	6	8	2	5	4	5
English	4	3	6	7	4	9	3	2	3
Public Speaking	5	8	5	4	4	10	6	5	2
Psychology	6	9	9	2	5	8	2	10	7
Finance	7	1	3	9	10	5	7	6	10
Mathematics	8	7	10	5	7	4	4	7	9
Credit	9	6	1	10	9	7	10	11	12
Marketing	10	12	7	8	11	6	13	8	6
Business Law	11	10	11	12	6	11	9	9	8
Sociology	12	11	12	11	13	13	12	13	13
Statistics	13	13	13	13	12	12	11	12	11

It was somewhat of a surprise to find English ranked fourth in the list of college courses. Apparently businessmen attach more importance to it than do most college instructors, other than English professors. An interesting sidelight on the importance of English was brought out in a section of the questionnaire which asked businessmen to indicate the importance which they attach to a college student having an ability to write well. Over one-half, 54 percent, felt that it was very important. Thirty-five percent rated it as important, and only 11 percent rated an ability to write well as helpful but not important (Table 3). Public speaking ranked fifth in importance, with the poultry industry placing it second and the feed industry ranking it tenth. Apparently, businessmen would like to see college students have some capacity for both writing and speaking. Perhaps all college instructors need to emphasize these two subjects more in the future than they have in the past.

Psychology was rated sixth in importance, with the dairy and the food processing industries ranking it in second place and the miscellaneous group ranking it in tenth place. Finance, mathematics and credit were placed seventh, eighth, and ninth, with a considerable range existing in both finance and credit. Bankers rated finance first in importance while farm machinery dealers and poultrymen ranked it tenth. It was interesting to note that cooperative

managers ranked credit in first place while the poultrymen ranked it twelfth. The feed and the food processing industries rated mathematics fourth but the cooperative managers rated it tenth in importance.

Marketing and business law ranked tenth and eleventh respectively. Feed dealers and poultrymen ranked marketing in sixth place, but the food processors ranked it last. This probably reflects the importance of the problem to the respective industries. Businessmen seemingly attach little importance to business law as a part of the kit of tools possessed by a college graduate. Farm machinery dealers rated it sixth while the dairymen rated it twelfth. Sociology and statistics were ranked twelfth and thirteenth. There was little variation among the different groups as to the place of these two subjects. Most businessmen probably see little tangible value in the study of sociology. It likely would rank with history and philosophy, both of which are important in providing a background, but which have little "sales" value. The fact that statistics was ranked last may reflect the little use made of it by individual business concerns. The principal data assembled in small businesses are accumulated through accounting records. It is not likely that much statistical technique is needed to prepare the average report used by a small business or analyze it for the use of management.

One problem in planning a course in agricultural business administration is to determine how much technical information in agriculture should be included. Indiana businessmen were asked to indicate how much technical training the graduate should have. Their replies were about equally divided between the belief that a student should have a minimum of one course in each subject matter field and the belief that technical training was helpful but not necessary (Table 3). Over half the feed dealers, the food processors, and the poultrymen felt that a general course (one subject in each commodity field) was desirable. Twenty-nine percent of the dairymen, 43 percent of the poultrymen, and 14 percent of the miscellaneous group felt that specialization in one field was needed. The cooperative managers, bankers, farm machinery dealers, feed dealers, and the food processors saw no need for specialization. The majority of the bankers, cooperative managers and farm machinery dealers expressed the opinion that technical training in agriculture was not necessary.

Another factor that should be considered in setting up an ade-

quate training program and in gauging the market for graduates in agricultural business administration is the importance which businessmen attach to a farm background and to agricultural training. In other words, is the graduate of an agricultural economics department likely to be favored over the graduate of a business school, assuming that both are trained in comparable subject matter? A partial answer to this question was secured from the survey of Indiana businessmen. Only 26 percent of the businessmen felt that a farm background was essential for a position of management responsibility (Table 3). The range among those who thought

TABLE 3. IMPORTANCE OF SELECTED FACTORS IN THE EMPLOYMENT OF COLLEGE GRADUATES AS RATED BY 95 INDIANA BUSINESSMEN

Factor	All Groups	Banking	Co-ops	Dairy	Farm Mach.	Feed & Grain	Food Proc.	Miscellaneous	Poultry
	%	%	%	%	%	%	%	%	%
Ability to Write Well									
Very important	54	58	50	53	50	50	86	75	22
Important	35	33	32	27	50	50	—	25	67
Helpful	11	9	18	20	—	—	14	—	11
Technical Training									
General Course	44	46	45	36	23	63	57	43	57
Specialization	9	—	—	29	—	—	—	14	43
Not Necessary	47	54	55	35	77	37	43	43	—
Farm Background									
Essential	26	17	55	—	31	13	14	13	33
Desirable	62	58	45	64	62	75	71	87	67
Not Necessary	12	25	—	36	7	12	15	—	—
Agricultural Training									%
Essential	20	36	30	7	15	—	—	29	33
Desirable	72	46	70	87	85	100	57	71	58
Not Necessary	8	18	—	6	—	—	43	—	11

a farm background to be essential was from 13 percent in the feed and the miscellaneous groups to 55 percent for the cooperative managers. Almost two thirds, 62 percent, expressed the view that a farm background was desirable. Only 12 percent thought it was not needed. It was interesting to note that 36 percent of the dairymen reporting did not attach any importance to a farm background insofar as hiring a man for a position of management responsibility.

Agricultural training was considered essential by only 20 percent of the respondents. Neither the feed nor the food processing groups considered it essential for a management position in their businesses. Only seven percent of the dairymen considered it essential. On the other hand almost three-fourths, or 72 percent, of the businessmen felt that agricultural training was desirable. Only eight percent of the respondents felt that agricultural training was not necessary.

One might generalize from this survey (although a broader study is needed) that students trained in agricultural business administration will not have much of an advantage over students trained in regular business schools. At least there was no pronounced indication in this survey in Indiana that an agricultural background is a deciding factor. Other things being equal, the graduate in agricultural business administration may be favored. But one cannot be certain of this point.

Several factors should be considered in outlining an adequate training program in agricultural business administration. These are (1) arranging a course of study which will provide the necessary technical and non-technical information; (2) offering an integrated program which will lead to a better understanding of human relations; and (3) developing an in-service training program which will permit the student to accumulate some practical experience while he is pursuing his course of study. The difficult problem, of course, is to achieve the proper balance of all three factors.

There are many differences of opinion as to what should be included in any course of study. I have no illusion that any program which is recommended here will meet with universal acclaim. It is hoped that it will serve as a starting point which will lead to the development and acceptance of a practical program for training students in agricultural business administration. A course of study in this field will of necessity include many business administration courses. Agricultural economics departments should not attempt to offer these specialized courses if the college or university has a business school which can do the job. In some cases, however, it will be necessary in agricultural economics to add new staff members trained in accounting, selling, merchandising and the like.

A suggested four-year plan of study (on a semester basis) is shown in Table 4. The first two years of this program will cover the basic agricultural subjects as is presently the case with most agricultural economics curricula. The junior and senior years will be devoted chiefly to the study of agricultural economics, business administration, economics, and related courses. Thus, the last two years will enable the student to sharpen his training to the point where he will have something to sell upon leaving school. This plan of study is not all-inclusive. It is, perhaps, much too traditional. Each plan must necessarily be tailored to meet the situation at the Institution which adopts it. It would be desirable as

the training program develops to add courses in insurance, personnel administration, transportation, purchasing, etc. It is contemplated that accounting majors and marketing and merchandising majors will gain practical experience in their specialty through in-service training programs arranged in cooperation with industry.

The problem of building human relations into a training program is not an easy one to solve. Most curricula, and too many college

TABLE 4. PROPOSED PLAN OF STUDY FOR ACCOUNTING AND MARKETING AND MERCHANDISING OPTIONS IN AGRICULTURAL BUSINESS ADMINISTRATION

Freshman Year		Sophomore Year	
First Semester	Credits	First Semester	Credits
Introduction to Agric. Econ.	3	Farm Management	3
Principles of Economics	3	Principles of Accounting	3
Animal Husbandry	3	General Mathematics	3
Poultry Husbandry	3	Feeds and Feeding	3
English composition	3	Public Speaking	3
General Chemistry	3	Electives	6
Elective	3		—
	21		21
Second semester		Second Semester	
Principles of Economics	3	Principles of Accounting	3
Dairy Husbandry	3	Advanced Mathematics	3
Agronomy	3	Applied Psychology	3
Horticulture	3	Principles of Sociology	3
English composition	3	Economic History of the US	3
General chemistry	3	Electives	6
Elective	3		—
	21		21
Junior Year		Senior Year	
First Semester		First Semester	
Cost Accounting	3	Agricultural Prices	3
Money and Banking	3	Business Forecasting	3
Agricultural Marketing	3	Advertising	3
Report Writing	3	Business Letter Writing	3
Prin. of Salesmanship	3	Labor Problems	3
Electives	6	Electives	8
	—		—
	21		21
Second Semester		Second Semester	
Income Tax Accounting	3	Merchandising	3
Corporation Finance	3	Agri. Cooperation	3
Applied Salesmanship	3	Market Research & Analysis	3
Agricultural Statistics	3	Prin. of Public Relations	3
Business Law	3	Agri. Business Management	3
Electives	6	Electives	6
	—		—
	21		21

instructors for that matter, have been overzealous in their efforts to cram facts down students' throats. The emphasis of most courses of study upon technical information is easily understood. Instructors are trained and work in specialized fields which encourages them to place a premium upon their individual courses. Only a few instructors have the chance to see the whole picture faced by a student unless the instructor serves as a student advisor or counselor. Then too, college instructors who divide their time between teaching and research may become over-balanced in their efforts to disseminate factual information. This criticism is not intended to discredit the teaching of factual information. It is hoped, however, that all instructors will recognize, and many of them do, that the problem of training students for business careers transcends the obvious objective of teaching facts and figures. The fact that 95 Indiana businessmen consider nine other factors more important than college courses in hiring college graduates for management positions suggests the need for more effective work in the field of human relations and personality development.

College instructors can have an important influence upon the character of individual students. They can help students acquire the technique of working with others. The whole set-up of college instruction works against the notion that students should work together. College work is put on an individual basis and any indication of collusion is promptly penalized. The realistic problem which the teacher faces is that there are always some students who do not contribute their share to a community study program. In order to penalize those who take "a free ride" the idea of co-operative work is abandoned. An effort should be made to plan problems on which students can work together. An alert instructor can find ample means to bring the careless student to task.

The least that we can do is to encourage students to participate in college activities—student clubs, debating, campus journalism, campus social programs, and student government to mention just a few. Perhaps agricultural economics departments should consider setting up activity programs for their students. It is possible that they might give some course credit to students who participate in them. The responsibility for arranging the activity program of individual students might be delegated to the various college instructors. This will assign the responsibility to someone to check up

periodically to see what progress the student is making in learning self confidence and the technique of working with others.

Many successful in-service training programs are being used by colleges and universities. Students are placed in business organizations, for example, during the summer months between their sophomore and junior years and/or between their junior and senior years. Such a program gives the student a chance to try out the profession toward which he is working. It also gives the business concern a chance to look over a prospective employee. The experience gained in actual business contacts enables the student to appreciate more fully what he needs to be a success in his business career. When he does get on the job this experience helps him to produce on the job at a more rapid rate.

College instructors also need to have personal contact with the agricultural and related industries which may hire men trained in agricultural business administration. For the most part, positions are filled on a personal basis. When an employer needs a man with a particular training, he will contact a personal friend in whose judgment he has confidence. If a canvass of his friends fails to uncover a desirable man, he will resort to blind requests of other sources where trained personnel may be found. It is one thing to train the student and quite another job to place him. This does not appear to be a problem at present, but the time will again come when there will be more than one trained man for a given position. Hence, it seems important for college instructors to be acquainted with the trade.

Conclusion

There seems to be a genuine opportunity to train students in agricultural business administration with options in accounting and in marketing and in merchandising. Other options may be added as the training program gains stature and as the need appears. The training program needs to offer enough technical business information to enable the student to get a job upon graduation. Yet it also needs to include some guidance to acquaint the student with the problems of human relations.

Much work needs to be done toward gathering information on the probable market for graduates in agricultural business administration. There is some reason to believe that the agricultural eco-

nomics graduate may not have much advantage over the business school graduate if an agricultural background is to be the deciding factor. Surveys should be made of employers and of former graduates to learn which courses they feel are most important in contributing to the success of men in business. A careful in-service training program should be planned to give the student practical experience in his specialty.

Moreover, we need to interest business organizations in the programs of agricultural economics departments which plan to train students for business careers. Businesses generally follow the practice of buying the items they need upon the basis of specifications. It would be most helpful if business organizations would suggest some "specifications" which colleges and universities might follow in training young men and women who desire to follow business careers. Colleges are handling a very valuable raw material when they accept the responsibility to train young men and women. There seems to be a mutual responsibility to make this training as effective as possible.

DISCUSSION*

O. A. DAY, Economist
Wilson & Co. Inc., Chicago

Divergence of opinion among Professor Wood's survey respondents on what business looks for in hiring a college man and on how he should be trained, brings out clearly that it will not be a simple job to train agricultural economics majors for business careers. My discussion is presented merely as that of another respondent, and likewise preliminary and inconclusive. However, I am glad that this subject is receiving some of the attention it deserves by this Association and am pleased to have a part in the discussion.

It seems to me that there are three fundamental ways in which agricultural economics training may fit college men for business careers.

One is training men for jobs in commercial research, mostly in the larger companies and trade associations. This really requires graduate work. It is not possible to give adequate general and technical training for such work without at least one year of graduate study. This is an expanding field and one which is gaining in service and reputation. Properly functioning commercial research departments are so close to the management of business that many heads are being given executive recognition in title and responsibility. A large number will rise to the top of their companies.

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 8, 1947.

Agricultural economics departments should develop this field fully and encourage students with outstanding personality, intelligence, initiative and farm background to prepare for commercial research work.

Another need for agricultural economics training in preparation for business careers is in providing technical or commodity students with a generous amount of economics. Professor Wood has mentioned this, and Table 2 from his survey points to the demand. In our agricultural colleges, I believe this type of agricultural economics training should have fully as much emphasis as major training in agricultural economics for business careers.

As a practical matter, it must be recognized that businesses hiring college graduates will always want many technical men, and that large numbers of these men will continue to rise to management positions. They need economic training for both its broadening value and the useful purpose it will serve in their advancement.

The third way in which agricultural economics training may fit college men for business careers is in the field which Professor Wood has discussed in detail. His objectives are commendable and he has made some splendid suggestions on how to train these men. I am inclined to feel, however, that Professor Wood may have somewhat over-rated the job that these graduates will usually obtain. Business in general does not hire a college graduate for the definite purpose of immediately becoming a young manager, or "third assistant to the president," even though the idea of his advancement eventually to a management position may be under consideration. Rather, business is more likely to hire a college graduate for a fairly definite assignment at or near the bottom of some phase of the company's operations—buying, selling, accounting, manufacturing, et cetera. So we are up against the usual problem of not knowing what specialized training to give because we do not know what job will be open or what job the fellow may finally decide to take. Professor Wood proposes to give him some of nearly everything, and I suppose this is about all that can be done except for the exceptional students who develop their objectives unusually early in their college years.

I do not agree with the respondents on statistics. In the first place I think of statistics primarily as a branch of mathematics. The study of mathematics is said to be unexcelled for the development of correctness of thinking and reasoning capacity. A course in statistics, however, should have enough practical application of mathematics to be useful to any graduate entering business. Probably he will never have occasion to calculate a correlation coefficient, but he likely will need to know how to handle data, aside from usual accounting routine, and how to make and read charts.

In almost any business job, character, personality, and ability to work with others is highly important—as reflected in the survey Professor Wood has made. We always look for these qualities. I wonder, however, if it may not be a bit confusing to rate these qualifications in comparison with such things as "Courses Taken" and "Scholarship" and then draw specific conclusions from the comparative ratings. We consider several things together in hiring a college man, and we are not satisfied without a good balance

and reasonable qualification in each. We size up the personality, we check the scholastic record, and we carefully consider the background of each applicant. We would be very hesitant to employ him if he were below average in any one of these.

It is hard for me to believe that a farm background carries as little weight in the employment of college men by agricultural business as Professor Wood infers from the survey. Of course this will vary with the job, but I observe that 88 percent said it was either desirable or essential whereas only 12 percent said it was not necessary. Only 53 percent thought technical training was needed. Again, somewhat more respondents thought a farm background was essential than thought agricultural training was essential, or 26 percent against 20 percent. Evidently a combination of a farm background and agricultural training are considered quite important. I believe they will give the graduate more advantage than Professor Wood appears to hope. At least I can assure you that a farm background and agricultural training are highly important to Wilson & Co. in any position involving livestock or dealing with farm folks directly or indirectly, which includes a great number of our employees.

Referring to Professor Wood's proposed plan of study again, I should like to raise one question, even though it may be of minor importance. One-fourth of the credits are elective, or 42 hours out of 168. I wonder particularly about the six hours of electives in the first year and as much as 12 hours in the second year. I should think in most cases the faculty would be in better position than the student to select somewhat more of the coursework than suggested in this program, particularly in the first two years.

I wish to endorse fully the emphasis given to inservice training. To be of maximum benefit, of course, it is necessary that the student make up his mind rather early on what he wants to do. This will in many cases require some persuasion and assistance, but it should be well worth the time and effort. Inservice training will have value even though the graduate finally takes another type of job, for it will nevertheless broaden his experience and should help him to get a better job and to make a quicker start.

Incidentally, some inservice training might not be out of place for the faculty that is going to be training these young men for business careers. I will mention a parallel situation in support of this suggestion. The ownership or actual management of farms by agricultural economics professors, which is fairly prevalent, must have had a very wholesome influence on the training of farm managers, which training Professor Wood in his paper has cited as "very successful over the years." Furthermore, if some of the proposed courses in business management are to be given by the agricultural economics department, careful consideration should be given to the development of a staff that has at least some business experience as well as an appropriate academic background. I believe that the students would benefit considerably, and be definitely stimulated, by association with faculty members who have been on the business "firing line."

There is one thing not mentioned by Professor Wood that must be done in training men for business careers. Unfortunately, there are enough in-

stances where it is not being done, so that we should not take for granted that it will be. I am sure Professor Wood will agree it is imperative that these students shall be led to believe in business, to have confidence in competition, to understand the contributions which business and industry have made in the progress of our nation. They must be instilled with the merits of our system of private enterprise rather than permeated with questions and reservations about this great heritage we have and must preserve.

Professor Wood properly emphasized the need for training students as much as possible in human relations and has made several suggestions that have real merit. For example, the courses proposed in psychology, sociology, salesmanship and labor and public relations should be very helpful to students being trained for any business position. Without detracting from his proposals, I should like to suggest, however, that this need above all should be a challenge to the individual instructor and professor, day by day. This is vitally needed and nothing can replace it, in my opinion. My choice of a career arose from the manner of presentation of my first course in agricultural economics, and my future was affected by the relationship that developed from that course. Charles Luckman, youthful President of Lever Bros. Co., expressed what I have in mind very clearly in his address last May when Dr. Stoddard was installed as President of the University of Illinois. Mr. Luckman said, "Those who participated in my education passed on to me a way of life, not merely a means of livelihood."

In closing, I want to commend Professor Wood on the thought he has given to this subject and the very helpful survey he has made. I feel sure agricultural economics departments can interest business in this program, but I believe it is reasonable to expect, and will be necessary, that they accept the responsibility and take the initiative in bringing specific problems to business. If this is done, I am confident they will receive good co-operation and many helpful suggestions.

ON THE REDEFINITION OF PARITY PRICE AND PARITY INCOME*¹

I. *The Committee's Assignment*

THE assignment given to this Committee was to "study alternative ways of redefining parity prices and parity income to provide a more practicable and more equitable measure of equality for agriculture, and attempt to develop definitions or formulas that are economically sound and that could be put into actual operation."

This is a difficult assignment for a committee to carry out. The topic is one about which differences of opinion cannot be resolved solely by "appeal to facts." Equity, economic soundness, and practicability are objectives which have no precise connotation; nor are they necessarily consistent.

Whether a formula can be made operative depends not only on the technical possibility of computation and on administrative feasibility, but also on the measure of acceptance given by the groups affected and their political leaders. This acceptance will be conditioned by past experiences in the application of the parity concept, and by anticipations as to the nature of the economic situation with which the formula will be expected to cope. Any politically acceptable modification of the parity formula must recognize these conditions, and empirically, will be a compromise between different principles and viewpoints.

II. *Limitations of the Parity-Price Approach*

Members of this association are generally familiar with the weaknesses of the present parity-price formula. So much attention has been given the subject, in the *Journal of Farm Economics* and other publications, that it seems unnecessary to treat it in detail here. A brief statement should suffice.

Parity prices, as now computed, are particularly deficient in two respects: they prevent the adjustment of current consumption of the various agricultural products to existing supplies; and they hinder the maintenance of a good production balance within

* A report presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 8, 1947.

¹ Report of a Committee composed of R. J. Eggert, R. K. Froker, L. J. Norton, O. V. Wells, K. T. Wright, and H. R. Wellman (Chairman).

See O. V. Wells' dissenting comment.

agriculture. These deficiencies are inherent in the formula itself. The price relationships that prevailed in the base period are perpetuated in the current parity prices. No account is taken of the changes in the relative costs of producing the different agricultural commodities or of the changes in the relative demands for them which have occurred since the base period. For many commodities the base period is still 1910-1914, a third of a century ago.

Experience suggests that maintenance of market prices of agricultural products at or near their respective parity levels as now computed would sooner or later lead to the following adverse results:

1. Needed adjustments in agricultural production will be impeded; shifts in acreage of crops and number of livestock in accordance with changes in basic cost and demand conditions will be retarded; and production will tend to be maintained in high-cost areas and expansion of production curtailed in low-cost areas.
2. Commercial outlets, both domestic and foreign, will be restricted.
3. Excessive stocks of nonperishable commodities will be accumulated, and perishable commodities will be wasted.
4. Acreage allotments and marketing quotas will be re-established.
5. Substantial government subsidies to agriculture will be required during periods of national prosperity.

These adverse consequences would be lessened only as market prices were permitted to depart from parity.

Various proposals have been advanced for "modernizing" the parity-price formula. These proposals may be resolved into two classifications: (1) those which involve modifications in the parity-price index; and (2) those which would permit a gradual change in the temporal relationship among the parity prices of individual agricultural commodities.²

Modifications in the parity-price index which have been suggested include: (1) adding farm wage rates to the items included in the index; and (2) shifting the base period from 1910-1914 to a more recent date.

Legislation authorizing the inclusion of farm wage rates in the parity-price index has been introduced in Congress on several occasions. The weight proposed for this item was to be based on the imputed value of the labor performed by farm operators and

² Two other changes have also been suggested: (1) periodic revision of the weights assigned to the various items in the parity-price index; and (2) adjustment of current parity prices of crops for departures in national yields per acre from the average of the preceding ten years.

members of their families as well as on the expenditures for hired farm labor. There seems little justification for adding family labor, but the inclusion of hired labor would improve the accuracy of the index in measuring over-all changes in farm expenditures. Nevertheless, if farm wage rates should continue high in relation to the prices of articles farmers buy, as now seems probable, the adverse consequences of maintaining market prices at the resulting higher parities would be accentuated.³

Legislation has also been introduced in Congress providing that the base period for all commodities will be July 1, 1919 to June 30, 1929. One of the effects of this provision would be to lower the parity-price index and hence, the level of the sum total of parity prices by about 10 percent. The available evidence supports the thesis that this reduced level would typically have produced from 1933 to date, full parity income as officially defined.

Another effect of shifting the base period to 1919-1929 would have been an alteration of the relationship among the parity prices of individual agricultural commodities. But this modified relationship would have been inappropriate as a basis for government price supports in the early 1930's. A more suitable basis at that time would have been the 1925-1929 relationships. Today, however, even they are obsolete.

Since any base period tends to become outmoded, the adoption of a moving base period for determining the relative parity prices of individual agricultural commodities has been advocated.⁴ This proposal would base the current parity price of each commodity upon its average price during the preceding five to ten years adjusted by the current parity-price ratio. Thus, the parity price level of combined agricultural products would be governed by the parity-price index, however it might be constructed, while the relationship among the parity prices of individual commodities would be determined by the relationship that prevailed among their actual average prices during the immediately preceding years.

If the moving-average device is to keep current parity-price relationships among individual commodities even roughly in line with

³ The inclusion of hired farm labor would have lowered somewhat the parity-price index from 1931 to 1940, but would have raised it markedly from 1942 to date.

⁴ Albert S. Goss, Address before the 79th Annual Session of the National Grange, Kansas City, Missouri, November 14, 1945. "Legislative program of the National Grange." This JOURNAL, Vol. XXIX, No. 1, pp. 52-63. February, 1947.

differential trends in supply and demand conditions, two prerequisites must be fulfilled: (1) the preceding period during which the actual prices are averaged should be short; (2) and the market prices should be left free, or substantially so.

The first condition is necessary in order to minimize the lag between changes in supply and demand conditions and their subsequent reflection in current parity prices. Some lag is inevitable, but it will be minimized proportionately as the period is shortened. It is doubtful that the period should be longer than five or six years. Moreover, it should not include any of the war or immediate post-war years.

Free market prices are mandatory if trends in supply and demand conditions are to exert even a delayed influence on parity prices. If market prices of individual commodities were supported at or near their respective parity levels, the relationship among them would tend to become frozen. A moving base for individual commodities would be a substantial advantage over a fixed base only if market prices were free to fall below as well as rise above the computed parity prices. The effectiveness of this proposal, therefore, requires direct payments to producers in lieu of market-price supports as such.

If the only alternatives were retention of the present parity-price formula or modification of it, we would certainly favor the latter. In such modification we would employ not only a moving base period for determining the relationship among parity prices of the respective agricultural commodities, but also a shifting base period for the parity-price index itself. Its base period would be the most recent normal peacetime period in which national production and employment were at high levels. Together with this change we would favor the inclusion in the index of farm wage rates, weighted exclusively on the basis of expenditures for hired farm labor. Periodic revision should be made of the weights assigned to the various items in the index; the current parity prices of crops should reflect departures in national yield per acre from the average of the preceding ten years.

Modification or retention of the parity-price formula are not, however, the only alternatives. The majority of this committee believes that the parity price approach should be abandoned. The basic premises on which it rests are, we think fallacious. We do not subscribe to the proposition that "economic equality for agricul-

ture" is to be found through manipulation of the prices of individual agricultural products. Nor do we believe that the perpetuation of historical relationships between agricultural and nonagricultural prices, and among agricultural prices themselves, is in the long-run interest of farmers or of the nation.

III. *Improving the Competitive Market*

Under conditions of substantially full employment and high levels of national production and income, agricultural price policies should be directed primarily toward improving the operation of the competitive market. Considerable improvements are possible: increased efficiency in the physical distribution of products; more prompt adjustment of retail prices to wholesale prices; elimination of monopolistic practices of firms purchasing agricultural products; more effective regulation of trade practices; further improvements in grading, standardization, inspection, and in market news; development of a thoroughgoing outlook program, and an expanded program of education to promote good nutrition. All these would help make the prices of the free market serve better both farmers and consumers.⁵

In periods of severe and prolonged depressions farm incomes may need to be supplemented. The remainder of the report is devoted to this topic.

IV. *Income Supports in Depression*

Agricultural economists generally agree that income supports should be provided for agriculture during severe and prolonged depressions. While opinions among them differ regarding the kind of income supports that should be instituted, few question the need for doing something. Moreover, there is general agreement that such income supports as are undertaken should be in the form of direct payments to producers rather than manipulation of market prices.

In the agricultural price policy contest sponsored by this association several of the winners advocated special devices for depression

⁵ The brief space devoted to improving the competitive market does not imply any lack of appreciation on the part of this Committee of the fundamental importance of such improvements. Rather, it implies that neither "parity price" nor "parity income" is a useful concept in achieving them.

conditions. Even those who made no explicit distinction between depression and nondepression conditions, suggested measures which would be operative mainly in depressions.⁶

The Land-Grant College report on *Postwar Agricultural Policy* contained the following statement:

In the case of a long and severe depression, certain income payments to farmers as well as other groups may be advisable. . . . They should be outright payments designed to keep farms in productive condition, and to speed recovery by injecting additional money into the nation's income stream at a strategic place (page 28).

T. W. Schultz, in his book *Agriculture in an Unstable Economy*, expresses the view that:

Business depressions are the main cause for the periodic drop in the general level of prices of farm products and in the income from farming, and . . . the maintenance of farm income is important, not only to check the deflation associated with a business depression, but to bring about recovery (page 223).

The desirability of providing income supports to farmers in depression was also recognized by the House Special Committee on Postwar Economic Policy and Planning. In its report on *Postwar Agricultural Policies* the committee declared "that in the past agriculture has borne an unequal share of the burden of a depression" (page 34), and recommended that consideration be given to "a system for cushioning declines in prices and income in the event of a business recession, by the use of price or income supports, or other devices" (page 40).

Some businessmen, too, find merit in the proposal for direct payments to alleviate the financial duress of farmers in time of depression. In its report on *Agriculture in an Expanding Economy* the CED's Research Committee of businessmen recommended that "current disagreements notwithstanding, continued study should be given to the use of supplemental payments to farmers . . . to offset a fall in consumer buying power" (page 29).

Two different proposals for supplementing farm incomes during a depression will now be examined: compensatory price payments and an over-all parity income approach.

⁶ See: William H. Nicholls, and D. Gale Johnson. "The Farm Price Policy Awards, 1945: A Topical Digest of the Winning Essays." This JOURNAL, Vol. XXVIII, No. 1, pp. 267-293, February, 1946. Also, The eighteen winning essays, this JOURNAL, Vol. XXVII, No. 4, pp. 743-902, November, 1945.

V. *Compensatory Price Payments*

T. W. Schultz and his associates have proposed a system of compensatory price payments as a means of supporting farm incomes in depression.⁷ The outlines of this system, in brief, are:

1. During business depressions the government would make commodity price payments directly to farmers.

2. The rate of payment per unit of each commodity would be equal to the difference between the current market price of that commodity and some specified percentage of its predepression price.

3. A depression would be defined in terms of an index of unemployment.

Schultz suggests that an appropriate rate of payment may be the difference between the current market price and 85 percent of the predepression price (page 228). He does not define the predepression price in terms of the number of years to be included. This deficiency, however, is supplied by W. H. Nicholls, who suggests a three-year average price just prior to the depression.⁸

Schultz suggests that "the level of unemployment might . . . be used as an automatic indicator of the need for such payments. For example, whenever unemployment exceeded 5 percent of the total labor force, a depression would be deemed to exist" (page 223).⁹ He recognizes that "unemployment records now available are, unfortunately, far from satisfactory for ascertaining the presence of a depression," and he suggests the possibility of using alternative indicators (page 223).

It seems reasonably clear, however, that if Schultz' proposal had been in effect during the interwar period, payments would have been called for in 1921 and 1922, and again from 1930 to 1941 inclusive. He did not estimate the aggregate amount of payments that would have been required during those years, nor is it possible to supply the data for all years without extensive computations, since compensatory payments on any commodity would be discontinued "when the market price of the farm product equals or

⁷ T. W. Schultz, "Two Conditions Necessary for Economic Progress in Agriculture," *Canadian Journal of Economics and Political Science*, Vol. X, No. 3, 1944; and *Agriculture in an Unstable Economy*, pp. 221-235. 1945.

⁸ W. H. Nicholls, The First Award Paper in the agricultural price policy contest, this JOURNAL, Vol. XXVII, No. 4, pp. 748-760. November, 1945.

⁹ The page references in this section, unless otherwise noted, refer to *Agriculture in an Unstable Economy*.

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exceeds the established percentage of the predepression price," (page 229) regardless of the amount of unemployment. Rough estimates, however, can readily be made for certain years. For example, from 1931 to 1933 inclusive, prices of virtually all farm products were below 85 percent of their predepression averages. Hence, the amount of payments due in those years would have been approximately equal to the difference between the cash receipts from farm marketings and 85 percent of the predepression average cash receipts from farm marketings.

The payments that would have been called for during 1931-1933, using the three years, 1927-1929, as the predepression period, are indicated in the following tabulation:¹⁰

Year	Million dollars
1931	3,014
1932	4,642
1933	4,071

Payments to agriculture, as specified above, would not only have prevented any decline in farm income relative to nonfarm income, but would have resulted in a large increase. This is shown in the following comparison:

Year	Parity-income ratio	
	<i>Without payments</i>	<i>With payments</i>
Average 1927-1929	94	94
1931	68	127
1932	61	182
1933	78	187

Such a marked boost in the relative status of farm incomes does not seem justified from the standpoint of equity. But a more important consideration is the comparative efficiency of such large payments to agriculture in promoting general economic recovery. There is little evidence to support the hypothesis that government payments to agriculture, in excess of the amount needed to main-

¹⁰ These payments are very much larger than those required under the parity income approach. (See section VI.) Also they are much larger than would have been the case if the level of price supports had been adjusted for changes in the prices of cost items as proposed by this Association's Committee on Parity Concepts in 1945, this JOURNAL, February, 1946, page 396; and by D. Gale Johnson in his Award Paper, this JOURNAL, November, 1945, page 767.

tain the predepression farm-nonfarm income ratio, would be as effective in combating depression as their use in other ways. It may even be that the anti-cyclical effects of government expenditures during a depression would be more pronounced if a part of the payments necessary to achieve farm income parity were allocated elsewhere.

Under Schultz' proposal, the price relationships among individual agricultural products that prevailed in the predepression base period are perpetuated in the returns (prices plus payments) to growers throughout the ensuing depression, except when the price of any individual commodity rises above the support level. If the depression, as defined by an index of unemployment, is a long one, as was the case in the 1930's, the freezing of returns to growers in accordance with the predepression price relationships could create serious maladjustments in the use of agricultural resources. This is recognized by Schultz (page 232), but he does not suggest a remedy.¹¹

The scheme mentioned in Section II, of determining the price relationships among commodities on the basis of a five-to-six year moving average, would, in the event of a long depression, be superior to determining them on the basis of predepression prices alone.

Immediate predepression prices are likely to be as unreliable a guide for compensatory payments during an early postwar period as during the latter part of a long depression. Relationships among individual commodity prices tend to become distorted during and immediately following great wars. The price relationships among individual agricultural commodities that prevailed in 1918-19 and 1919-20 could hardly have served as an appropriate basis for compensatory payments in 1920-21 and 1921-22, nor is it likely that the price relationships of 1944-45 to 1946-47 would be a suitable guide for such payments at any time in the future. During the depression of 1921-22 a more appropriate basis for compensatory payments would have been the 1910-14 prices received by farmers, adjusted for changes in an index of the prices paid by farmers. And, if a post-World War II depression should provide occasion for

¹¹ D. Gale Johnson also recognized that the predepression price relationships could soon be outmoded in a long depression, and states that "provision should be made for adaptation," but he does not elaborate on how the adaptation should be made. The Second Award Paper, this JOURNAL, Vol. XXVII, No. 4, p. 767, November, 1945.

compensatory payments in the near future, a more suitable guide would be the price relationships prevailing during the immediate prewar period.

The advantages cited by Schultz for compensatory price payments may also be claimed for the parity-income approach outlined in the following section. Both would be counter-cyclical in their effects, and both would leave prices free to clear markets. And, if the depression is short and does not closely follow a war, neither scheme would seriously disturb agricultural production. But if the depression is long or comes soon after a war, the parity-income approach seems preferable to the system of compensatory payments, since it would not produce maladjustments in agricultural production.

VI. *An Over-All Parity-Income Approach*

Two members of this committee—R. K. Froker and L. J. Norton—had, prior to their appointment to it, developed independently an over-all parity-income approach.¹² While their proposals differed in detail, they had the same fundamental objective, namely to assure a minimum share of the national income to the farm population while leaving the prices of specific agricultural products to be determined by the free play of market forces. This objective was to be accomplished by supplementing farm incomes directly whenever the ratio between farm and nonfarm income dropped below a prescribed level. Thus the level of farm incomes would be kept in line with total national income. Payments to individual farmers were to be based upon the market value of the products they produce and sell.

Froker suggested the use of the present official parity-income formula,¹³ as a standard for determining the proportion of the national income that should go to agriculture, but pointed out that the periods 1925–1929 and 1935–1938 would give substantially the same results as the period 1910–1914. Norton and Working, on the other hand, proposed as a standard the ratio of per-capita cash receipts from farm marketing less purchases of feed and livestock

¹² This JOURNAL, Vol. XXVII, No. 4, pp. 844–851, November, 1945. *Illinois Farm Economics*, No. 127, 128, 131, and 132, December, 1945 and April, 1946. E. J. Working collaborated with L. J. Norton.

¹³ "Parity, as applied to income, shall be that per-capita income of individuals on farms from farming operations that bears to the per-capita net income of individuals not on farms the same relation as prevailed during the period August, 1909 to July 1914." Agricultural Adjustment Act of 1938, as amended.

to the per-capita national income. Since this ratio was close to .44 during each of the three periods 1910-1914, 1925-1929, and 1934-1938, they used it in their calculations.

It is the opinion of the majority of this Committee that an overall parity-income approach during periods of depression has much to recommend it. We believe that it can be designed to help alleviate the financial distress which a business depression brings to farmers, and also, contribute to general national recovery. For such purposes, however, a redefinition of parity income is needed.

The present official definition is deficient in three important respects: (1) it employs a fixed base period; (2) that base period is far removed from the present; and (3) the income received by individuals on farms from nonagricultural sources is improperly credited to the nonfarm population.

Instead of a fixed base period, we would employ a shifting one; instead of a base period of more than thirty years ago, we would use the most recent normal peacetime period characterized by high-level production and employment in industry and trade; and instead of crediting the income received by farm people from nonagricultural sources to the nonfarm population we would allocate it to the farm population.

Following the language of the present definition, our revision would read as follows:

Parity, as applied to income, shall be that per-capita net income of individuals on farms that bears to the per-capita net income of individuals not on farms the same relation as prevailed during the most recent normal peacetime period characterized by high-level production and employment in industry and trade.

In accordance with this definition, each new normal peacetime period of high-level industrial production and employment would in turn become the base period for computing parity income. And the level of income supports to agriculture in depression would be based upon the farm-nonfarm income relationship that prevailed in the most recent normal predepression period. This relationship would change from predepression period to predepression period with changes in basic long-run factors influencing it.

In using parity income as a guide in computing the aggregate amount of supplemental income payments due agriculture in depression periods, we propose that the payments not equal the full difference between the computed parity income and the actual in-

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come, but rather a somewhat smaller amount, for example, the difference between 90 (or 85) percent of parity income and actual income. This decision rests mainly on the conviction that complete relative stability of the farm-nonfarm income ratio is too ambitious a goal.

The annual income payments due agriculture from 1921 to 1945, based upon 90 percent of parity income, are shown in table 1. The predepression period applicable to 1921-1922 is clearly 1910-1914; and the predepression period applicable to 1931-1932 is clearly 1925-1929.

TABLE 1. AMOUNT OF PAYMENTS THAT WOULD HAVE BEEN DUE AGRICULTURE FROM 1920 TO 1945 IF PROPOSED PARITY-INCOME SYSTEM HAD BEEN IN EFFECT¹
(Based upon 90 per cent of parity income)

Year	Average 1910-1914 = 100		Average 1925-1929 = 100	
	Parity-income ratio	Payments	Parity-income ratio	Payments
		<i>million dollars</i>		<i>million dollars</i>
1920	109	0		
1921	60	1,893		
1922	77	798		
1923	80	690		
1924	82	508		
1925	100	0		
1926	91	0		
1927	92	0		
1928	97	0		
1929	93	0		
1930			86	260
1931			72	854
1932			64	923
1933			82	260
1934			78	528
1935			102	0
1936			100	0
1937			108	0
1938			93	0
1939			87	164
1940			85	302
1941			107	0
1942			134	0
1943			154	0
1944			152	0
1945			166	0

¹ Except that the income received by persons on farms from nonagricultural sources is credited to the nonfarm population. Official data on which to make a proper allocation are not yet available for the entire period.

According to our formula, agricultural payments would have been made from 1921 to 1924 although at a much smaller rate in 1923 and 1924 than in the two previous years. Payments would have been resumed in 1930 and would have continued through 1934, with the peak in 1932. These latter payments would, however, have been based upon the 1925-1929 farm-nonfarm income ratio rather than on that of 1910-1914. Except for small payments in 1939 and 1940, no payments would have been made from 1935 to date.

If another depression should occur before sufficient time has elapsed to establish a peacetime period of high-level production and employment in industry and trade following the current transition period, supplemental income payments would again be based upon the 1925-1929 farm-nonfarm income ratio. But if a depression should be delayed sufficiently long to provide a postwar period of national prosperity which could reasonably be characterized as normal, it would be used in lieu of 1925-1929.

We agree with Schultz that an appropriate criteria for distinguishing between prosperity and depression is the level of unemployment. We would not, however, set that level as low as 5 percent of the total labor force, the figure he suggests. The Twentieth Century Fund survey, *America's Needs and Resources*, correctly, we think, points out: "... it seems probable in the light of past experience that an average of 5 percent of the labor force unemployed is not far from a practical minimum for 'high-level' employment, if not for 'full' employment (such as we have experienced during the immediate postwar boom)." (pages 15-16) Hence, our concept of a "period of national prosperity" would include years in which unemployment was higher than 5 percent, perhaps as high as 10 percent.

The next major consideration, after establishing a method for determining the amount of total payments, is the formulation of a plan for distributing them to individual farmers.

Both Froker and Norton have proposed that such payments be based on individual cash receipts from marketings.* This would mean that if the amount to be distributed in any year equaled 10 percent of the total cash receipts from marketings, each farmer would receive a payment equal to 10 percent of his individual sales after certain deductions.

In order to avoid the double counting of income included in

* See Mr. Eggert's comments.

interfarm sales, the Committee suggests that cash payments for feed, livestock, and seed be deducted from gross cash sales. It is recognized that different farmers render varying amounts of marketing services which may affect the relative prices they receive. In each case sales should be calculated on the equivalent wholesale value in the market commonly used by the farmers of the commodity. To simplify administration a minimum payment of, say, \$20, might be made.

To avoid payments at the full scale to very large producers, a sliding scale might be developed. For example, payment might be at the full rate on the first \$5000 of sales and at a progressively lower rate on each succeeding increase of \$5,000 of sales. Such a graduated scale of payments departs from one of the principles underlying this proposal, namely, to pay in accordance with production in order to encourage maximum individual effort. Nevertheless, there are valid objections against large government payments to very large producers such as those operating corporation and nonfamily type farms.

Another conditional factor, in addition to scaling down payments to very large producers, could well be the confinement of payments to farmers who maintain certain standards of land use and conservation on their own farms. Admittedly, encouraging conservation and maintaining parity income are two separate aspects of public policy, but there are advantages in linking them together. Instead of receiving payments for specific conservation practices in good times as well as in bad, farmers who adopt genuine conservation plans would be eligible for payments in depressions when the added income is needed.

The outstanding advantage of making payments to farmers on the basis of cash farm receipts is that additional distortions among prices of individual commodities would not be created. Prices would be set in the market and no specific payments would attach to any commodity.

The chief limitation of the method is that it would afford least income protection to producers whose products have fallen more in price than others. However, it must be recognized that these relatively low prices, which develop in prosperous times as well as in depressions, may merely indicate the need for production adjustments. In such cases the method of payment recommended would stimulate needed adjustments rather than retard them.

Objections sometimes voiced against an over-all parity-income

approach largely disappear when it is viewed solely as a device to alleviate the financial distress which a severe business depression inflicts on farmers, to reward farmers for maintaining full production in such periods, and to help speed general business recovery.

The contention that any supplemental income payments should go mainly to the lower-income group rather than to commercial farmers does not seem tenable to this Committee. Virtually all of the decline in per-capita net farm income relative to per-capita net nonfarm income during periods of severe business depressions is occasioned by the drop in the net income of commercial farmers. The incomes of non-commercial farmers are little affected by a collapse in market prices. The nature of their problem differs markedly from that of commercial farms, and its solution requires a different approach.

The kind and amount of payments proposed here would not, we believe, impede the needed transfer of labor resources out of agriculture. We recognize that overpopulation in some agricultural areas is partly responsible for the low average of per-capita farm income. The movement of people out of some agricultural areas needs to be speeded up, not retarded. However, the size and distribution of supplemental income payments which we propose would not have a retarding effect on migration from farm to city. Historically, people have left the farms in good times when employment opportunities in industry and trade were relatively abundant. In such times no payments to farmers would be made.

We do not claim that parity income as redefined by this Committee would in fact give the average farmer a real income identical with that received by urban residents. Real income is compounded of too many intangibles to permit accurate measurement. But even if it should be found that the real incomes of rural people averaged below those of urban people during normal peacetime periods of national prosperity, we would reject the proposition that income payments to commercial farmers in such times are an appropriate method of correcting the situation.

VII. *Widening Economic Opportunities*

Measures to ease the burden on agriculture of severe business depressions and to aid recovery, while important, should not lead to the neglect of programs designed to raise the general level of farm real incomes, particularly of the lower-income groups. But price maintenance or parity-income programs of the type discussed

earlier are not suitable means for accomplishing this purpose. Rather, the basic solution should be sought in measures designed to widen the economic opportunities and horizon of rural people both within agriculture and outside it.

While the Committee realizes that discussion of general measures beyond the parity-price and parity-income approach is not included within its assignment, it feels compelled to call attention to the fact that something more than these must be included in any effective broad-scale agricultural program.

The parity-income and compensatory price payment programs discussed above may be viewed as temporary devices to aid agriculture during severe business depressions. In that respect they are similar to anti-depression measures which have on occasion been adopted in the nonagricultural field. In contrast with such emergency measures, there are others which should be oriented toward raising the level of economic opportunities. Such long-term programs should not, of course, be limited to agriculture. We shall confine our remarks here, however, to certain aspects which seem to warrant emphasis within the agricultural field.

The disparity between the educational facilities and opportunities available in rural and urban areas is a paramount factor in promoting economic inequality between the two groups. The rural youth cannot compete on an equal basis with his city-bred contemporary when seeking employment away from the farm because he has been denied the educational opportunities extended to the latter. If a comparable educational program, including vocational training and guidance, were extended to the farm population, many barriers to the flow of human resources would be removed. Granted that our present elementary and secondary educational program is in need of much improvement, the most imperative need is in the rural areas of our nation.

The fact that rural life in general is conducive to health has led many to the unfounded supposition that there are no deficiencies in rural health conditions. This is an erroneous notion. The fact is that farm people have benefited less from medical and nutritional advances than urban people. A second long-term objective is clearly indicated: to improve the health and nutrition of farm people. This will be in part, of course, also an educational problem.

The ratio of people to resources, in rural and urban areas, might in some cases be more nearly equalized by the transfer of capital from areas where it is relatively abundant to areas where it is less

abundant. Government might well facilitate such a process by encouraging, in some appropriate manner, shifts toward a more decentralized industrial system.

Supplementing these long-term programs are others which should be directed toward strengthening the farm as an economic unit and the farmer as an entrepreneur. It is clear that many farms are too small in the sense that they do not provide an adequate level of living even under the best of price conditions. Farm tenure is another long-term problem which requires attention. Improved credit facilities and the use of modern farm management practices might well aid many farmers in obtaining more adequate economic units, and in improving tenure conditions.

The essence of these several long-term programs is that by widening the economic opportunities for farm people we can get more directly at some of the basic difficulties underlying our farm problem. Providing greater economic opportunities and making it possible for farm people to take advantage of them have the merit of being self-liquidating. By such measures we might approach the day when farm people will not require substantial and recurring financial aid from their government. In contrast, the present parity-price system blocks necessary adjustments and permanently keeps large parts of our agriculture dependent upon government subsidies.

A DISSENTING COMMENT*

O. V. WELLS

The Special Committee to consider the revision or redefinition of parity prices and parity income has concluded that the parity price standard and such support activities as might be associated therewith should be abolished and that direct government payments should be substituted therefor. Such payments would be used as an anti-depression aid and would be distributed among farmers generally on the basis of actual net sales for the current year in an amount sufficient to bring overall farm income to 80 or 90 per cent of a parity level calculated on the basis of relative farm and non-farm incomes existing during the last period of full employment.

These conclusions have been set forth in an excellent statement on which all members of the Committee except myself are in full agreement. Although agreeing with much that the Committee has said, I still find myself extremely skeptical with respect to their leading recommendation and the

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 8, 1947.

central argument on which it is based—i.e., that farmers should endeavor to operate under the simplest possible “free” market scheme in a complex, intricately-organized economic world where wage rates, business prices, and the foreign market are at least “semi-administered.”

I recognize that the Committee's conclusions are in accord with those of a great many other economists, as witness the preliminary finding some time ago of a similar Special Committee of the American Economic Association, as well as the leading papers in the recent prize contest sponsored by this Association.

I recognize that there may be conditions under which the use of commodity payments might well be preferable to direct price support. That is, there may be special cases where the use of payments is preferable to allowing commodities to spoil or cases where the use of payments will clearly result in an immediate and substantial increase in marketings or amounts used. I also recognize that payments should tend to minimize government interference in the marketing and processing field.

However, it seems to me that these are all special cases or advantages, “other things being equal.” The disadvantages of the payment proposal and equally important, the chances that such an alternative would offer a *stable* and an *acceptable* solution to the difficulties with which commercial farmers may soon be faced, must also be considered.

In many cases, I doubt if the payment proposal would automatically lead to the “clearing” of the market. At the same time, the use of the scheme as suggested would certainly not encourage the carrying of surplus production from high yield into *deficit* years—*deficit* either in terms of low yield or sharply increased demand. I further doubt whether either “free” prices or free price associated with the proposed non-commodity payments would *allocate* resources as between farmers and between commodities in as wise a manner as is sometimes claimed. I see no need for developing these items in detail. All I want to do is to simply emphasize the question as to whether the economic advantages of the payment proposal are not limited indeed.

There is an equally strong question in my mind as to how well farmers themselves might accept the payment solution. We already know of course that farmers and their representatives are generally opposed to direct aid via Government check. It seems to me that these feelings are something more than mere bias, that as a matter of fact there are sound grounds for this opposition, both cultural and operational. Specifically, the solution of all our difficulties through direct government spending is by no means a generally agreed upon remedy, even among agricultural economists; the proposed payment program is frankly designed for only intermittent use as an offset to relatively severe declines, which might well mean that it would have to be planned, debated, and legislated anew each time it was used; and finally, Americans generally simply do not like to feel themselves dependent upon direct subsidies or Government checks except as a last resort.

Altogether, it seems to me that the Committee's assignment needs to be considered in relation to the actual setting in which it appears farmers

must operate as we move ahead. It is no accident that we are living in a semi-administered world and here I agree with Dr. T. W. Schultz: Solutions are so much easier both in terms of theory and operation, given either a completely free or a completely administered market. However, it seems to me that actual conditions lie somewhere in between and that the best solution to the agricultural price problem can perhaps be found by endeavoring to build upon the experience which we have gained, often at considerable expense, since the enactment of the Agricultural Marketing Act of 1929 and the Agricultural Adjustment Act of 1933.

This would call for a revision of the current parity price standard, accepting the current average level or something close thereto as a satisfactory overall goal or working standard, revising the commodity relationships within the parity calculation in accord with relative prices prevailing during the decade immediately preceding the year for which the calculations are being made, agreeing upon a moderate support level, and finally, accepting the fact that considerable flexibility must be allowed, preferably at the administrative level. I recognize the difficulties to which such an approach might lead but I do not believe they are any greater than those associated with the Committee's proposal.

A MODIFYING COMMENT*

R. J. EGGERT

I agree with the Committee's report except with regard to the proposed method of distributing payments to individual farmers.

Distributing payments on the basis of individual cash receipts for marketings, as proposed in the report, would tend to favor those farmers who were in the fortunate position of still having a relatively high price for their product with average or above average yields. This would lead to the damaging charge (politically) that farmers who least needed payments were receiving the highest amounts of payment. It would also lead to the charge that certain commodity groups of our agricultural economy that had shown the least price decline would be collecting the most money, and conversely, those showing the most decline would be collecting the least money. To avoid this weakness, consideration should be given to setting up a plan to distribute payments to farmers on the basis of their contribution in physical production units. These physical units of production would be based upon an approximation of the average amount of land, labor, and capital utilized by each commodity produced. Weighting in the formula should give adequate consideration to the commodities' contribution to proper nutrition as well as to soil conservation and improvement. Under such a proposal, those whose efficiency was below average would be slightly penalized, while those farmers who were able to produce a given amount of product with less land, labor, and capital, would be given a slight advantage. A sliding scale could be set up making certain payment

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to those having production units between 0 and 10, another payment to those producing units between 11 and 20, etc. It will be recalled that a system such as this was used for draft deferment, but of course, this rough method of measuring labor inputs should be expanded upon to include inputs of land and capital.

This plan would also avoid the inventory problem associated with the distributing of payments on the basis of cash receipts, which might tend to encourage farmers to sell by a specified date so that they would get the payments that were assured them that year. From the standpoint of compliance, this plan would have the merit of requiring only adequate poundage sales, and an inventory statement, avoiding the element of fallacious price that might be associated with distributing payments on the basis of cash receipts. Payments would thus be made on the basis of each individual farmer's physical contribution to the national output, leaving prices to take care of the problem of adjusting production.

I can see no economic justification for penalizing large producers in a depression period just because of their size. There are probably certain areas in our agricultural economy where size is necessary for the most efficient output, and the trend is definitely in the direction of larger sized farm units. Furthermore, it is generally recognized that large scale agricultural enterprises often have a very difficult time riding through a serious depression.

It is my strong conviction that these payments should not only be made contingent upon "wise land use and conservation" but also upon standards of efficiency in production, including livestock production. In this way our entire economy would benefit even more from funds so expended, and consumers, as well as producers, would share in the benefits of more efficient production. This proposal would also have the practical advantage of helping to insure continued public and Congressional support for funds to cover the cost of the program.

As a basis of procedure, and in order to prevent the program from becoming too centralized, consideration should be given to county committees to determine the desirable practices in their respective counties. Agricultural colleges and experiment stations already have developed desirable practices for both production of crops and livestock, and the basing of the above payments contingent with the following of selected practices would provide additional incentive for the individual producers to adopt these practices.

DEVELOPMENTS UNDER THE RESEARCH AND
MARKETING ACT OF 1946—FINANCE, ADMINIS-
TRATIVE ORGANIZATION, PROCEDURE
AND POLICY*

E. A. MEYER

Administrator, Research and Marketing Act

THE Research and Marketing Act of 1946 which was signed by the President August 14, 1946, authorized an appropriation for the current fiscal year of 19 million dollars. The amount actually appropriated by Congress for this year is 9 million dollars and this is divided as follows:

Title I, Section 9—Agricultural Experiment Stations—\$2,500,000. This amount is allocated to the several states in accordance with a formula provided in the act, with the exception of \$625,000 which is earmarked for regional research by groups of stations. An additional sum of \$75,000 is earmarked for administrative use, including expenses incurred by the committee of nine experiment station directors who must review and approve proposals for regional projects. The funds allocated to the individual states by this act must be matched by State funds. At least 20 percent of the grants to the experiment stations must be used for marketing research. Indications are that about 40 percent of the funds appropriated this year are to be used for marketing research.

Title I, Section 10 (a)—\$3,000,000. Utilization Research—New and Wider Uses of Agricultural Commodities and Their By-Products.

Among the bureaus that are to share in these funds are the Bureau of Plant Industry, Soils and Agricultural Engineering; Bureau of Animal Industry; Bureau of Dairy Industry; Bureau of Entomology and Plant Quarantine; and the Bureau of Agricultural Economics and Industrial Chemistry.

The secretary may contract with private or public organizations or with individuals if the desired work can be done more efficiently or at less cost in this way.

Title I, Section 10 (b)—For Cooperation with State Experiment Stations in Regional Research Other Than Utilization Research—

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947.

\$1,500,000. Eight main lines of work are being undertaken under this section as described later.

Title II—Developing Sound and Efficient Systems for Distributing and Marketing Agricultural Products—\$2,000,000. This will include processing, packaging, handling, storing, transportation, grading, costs, margins, etc. These funds will be used mainly by the Production and Marketing Administration and the Bureau of Agricultural Economics.

Administrative Organization

The Secretary of Agriculture has appointed an advisory group within the Department consisting of the administrator of the act and heads of agencies that will do the Departmental work. This group recommends policy and program action under the act.

The administrator is organizing a small staff for general direction of the work to be done under the act and for coordination between the various agencies involved.

Work groups consisting of representatives of USDA and state agencies, concerned with programs in a particular commodity or functional area, have been appointed. The main function of these working groups is to prepare drafts of programs for presentation to the advisory committees mentioned later. The chairman of each working group also serves as executive secretary to the corresponding commodity or functional advisory committee. Each commodity or functional advisory committee is made up of representatives of producers, processors, and distributors. There are 19 commodity committees and two functional committees (on transportation and cold storage). The report of each of these advisory committees goes direct to the National Advisory Committee (Committee of Eleven) without change, although the administration is free to comment upon or to criticize the recommendations of these advisory committees.

The administrator's staff organized to date includes the following personnel: Henry G. Herrell, Executive Secretary to the National Advisory Committee and Executive Assistant to the Administrator; also heads of four commodity groups as follows: J. Roy Allgyer (grain, feed and seed crops, and forest products); Maurice R. Cooper (cotton, sugar, tobacco, fats and oils); Harry C. Trelogan (livestock and animal products); C. O. Bratley (fruits and vegetables).

Use of Committees

A National Advisory Committee has been established as required in the Act, nineteen commodity advisory committees representing producers, industry, and science have been set up. Each of these committees has met at least once and has submitted recommendations to the National Advisory Committee.

The working groups made up of department personnel have prepared reports to help in planning programs for citrus fruit, cotton, dairying, deciduous fruit, dry beans and peas, feed, grain, livestock, peanuts, potatoes, poultry, rice, seeds, soybeans and flax seed, sugar, tobacco, tree nuts, vegetables and wool.

The Committee of Nine, made up of directors of state experiment stations, has recommended a program of regional research.

How Lines of Work Are Determined

Procedures have been worked out as a result of many conferences since passage of the act, first looking at broad needs and later at practical arrangements that are possible under the recent appropriation. Generally speaking, aside from the original exploratory work and setting of broad policy, this is what happens. Working groups in the Department of Agriculture prepare background statements on problems and needs. The commodity advisory committees use these statements as the basis of discussion and develop a specific program recommendation including relative priorities. The recommendations of these advisory committees go to the National Advisory Committee as well as to interested agencies and officials in the Department of Agriculture and to state agencies and are also made available to the public. Other working groups review programs for commodities that are not covered by specific advisory committees. The Department, together with state agencies, develops proposals for specific projects. Other specific proposals come from the Committee of Nine (with reference to regional research) and from state and private agencies.

The Administrator's office, with the help of the Department of Agriculture advisory group, selects projects and drafts an over-all program. The National Advisory Committee reviews this proposed program and makes recommendations to the Secretary of Agriculture regarding programs and policies.

After any necessary revision in projects, the administrator allocates funds for the initiation of work by the several agencies.

Principles Followed in Selecting Projects

Projects to be developed under the Research and Marketing Act of 1946 should represent new lines of activity within various fields or activities in which expansion is clearly indicated. A proper balance should be maintained between fundamental research on the one hand and service work or the application of research to specific problems on the other hand. Efforts should be concentrated so as to do an effective job in a limited number of fields rather than scattering funds and efforts in a wide variety of superficial undertakings.

The Act itself sets forth these purposes: To provide for further research into basic laws and principles relating to agriculture and to improve and facilitate the marketing and distribution of agricultural products. The principal emphasis is on marketing research, marketing services, and the utilization of farm products.

The Research and Marketing Act is a foundation stone for a postwar agricultural program. Emphasis is placed on the coordination of research and service work to solve outstanding agricultural needs—especially new and expanded uses for farm products, as well as more efficient and more effective marketing of those products. It is clearly the intent of Congress to bring about more team work between states, between federal and state agencies, between government and industry, trade, and producers. The National Advisory Committee has emphasized the potentialities of this Act for achieving profitable utilization and wide distribution of high-level agricultural production.

Some of the Actual Lines of Work

With the \$3,000,000 allocated for “new use” programs, we have set up four main lines of activity. (1) New uses for commodities likely to be in large supply. (2) Improving nutrition and expanding marketing. (3) Relieving pressure on commodities in large supply by developing profitable alternatives, and (4) Development of new crops and uses and domestic supplies of agricultural products.

With the \$1,500,000 set aside for cooperative research on problems other than utilization, we have set up several main lines of activity, namely: (1) farm mechanization and more efficient and satisfactory use of farm buildings and homes; (2) reducing hazards and

risks in agricultural production; (3) improving nutritive value of crops; (4) improving the marketing of agricultural commodities; (5) improving rural health; and (6) improving farm statistics.

With the \$2,000,000 for developing a sound and efficient system for distributing and marketing agricultural products, we plan to study preparation of farm products for domestic and foreign markets. This includes processing, packaging, handling, storing and transporting. Also planned are studies on standards, grades, costs and margins, prices, and market statistics and the development of new and expanded market outlets. These studies are pointed toward quality improvement and cost reduction in getting goods from producers to consumers.

*What Members of the American Farm Economic
Association Can Do To Help*

When invited to speak I asked suggestions as to what points to cover and one suggestion was, "What can the American Farm Economic Association do to help in the program?" For your consideration, I will mention two or three problems. In attempting to apply scientific methods to the study of marketing and distribution problems, we must explore new territory, blaze new trails. Perhaps this is one of the meeting grounds of biological, physical and social sciences. We need the best thinking of the scientists, technologists, and competent observers. As shown in the chart of committees, we welcome and are prepared to systematize advice and counsel of many groups. In addition, we could profit from independent studies and measurements.

Qualified personnel is scarce, especially in marketing, because our programs go so much further than previous activities. Economists at the colleges can study the Research and Marketing Act and the program that is being developed under it, and attempt to educate and train students in ways that will enable them to contribute to this effort. The Act contemplates expansion of the program so that by 1951 the country will devote \$61,000,000 a year to this work as compared with \$9,000,000 this year.

Your assistance will be welcomed in ways you deem best.

FEDERAL PROJECTS SUBMITTED UNDER THE RESEARCH AND MARKETING ACT OF 1946*

HARRY C. TRELOGAN¹

Office of the Administrator, Research and Marketing Act

IT IS difficult to give, at this stage, a quantitative analysis of marketing projects submitted under the Research and Marketing Act of 1946. One of the first difficulties has to do with the definition of marketing. For example, is a project on the breeding of barley to develop a type better suited for malting purposes a marketing project? There is a tendency on the part of those submitting projects to adopt a very broad definition of marketing.

Another problem is to distinguish between marketing research and marketing services such as grading and market news.

The majority of projects submitted under the new act can be classified on a commodity basis, but some cut across commodity lines and must be classified on a functional basis. Following is a tentative classification of the 140 federal projects that have reached the Administrator's office:

Title I, Section 10 (a) *Utilization research*

- 37 projects on marketing, involving research in natural sciences
- 2 projects on marketing primarily of an economic nature
- 3 projects on production
- 3 projects on nutrition

45 projects total

Title I, Section 10 (b) *Research other than utilization, in cooperation with State Experiment Stations.*

\$225,000 has been earmarked for regional studies of marketing. The following projects have been submitted in other fields:

- 28 projects on production, involving research in natural sciences
- 5 projects on production, primarily of an economic nature
- 5 projects on rural housing, farm power, and welfare

38 projects total

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947.

¹ Dr. Trelogan spoke extemporaneously. These notes from his talk were prepared by Leland Spencer.

Title II *Marketing*.

\$225,000 for extension projects; \$250,000–\$300,000 for cooperation with State Departments of Agriculture.

- 1 project on foreign trade
- 9 projects on marketing, involving research in natural sciences
- 47 projects on marketing, primarily of an economic nature
- 57 projects in all

Of the 45 projects submitted under Section 10 (a), 35 pertain to particular commodities and 10 cut across commodity lines.

Of the 38 projects submitted under Section 10 (b), 9 pertain to particular commodities and 29 are not specific as to commodities.

Of the 57 projects submitted under Title II, 43 pertain to particular commodities and 14 are not specific as to commodities.

There appears to be nothing definitely new or novel about the projects so far submitted under the new act. There is, however, a difference in emphasis, attributable to the terms of the act. The influence of committee recommendations also can be observed. In general, the research contemplated under this act appears to be in the nature of an attack upon many segregated problems, with particular emphasis on commodities of which there is, or is likely to be, a surplus. There is much stress on marketing, but difference of opinion as to the meaning of this term is clearly evident.

Much attention is being given to service activities and to contracting for work to be done, in order to get quick results. There is a noticeable lack of attention to lines of work that might stimulate increased regulatory activity.

The projects reflect the fact that there is no clearly defined underlying philosophy as to what should be done other than what is in the Act itself. It is evident that the act means different things to different people, and the consequent interpretations of what projects are intended to accomplish.

MARKETING RESEARCH CONTEMPLATED BY THE STATE EXPERIMENT STATIONS UNDER THE RESEARCH AND MARKETING ACT OF 1946*

W. B. STOUT

Office of Experiment Stations

FOLLOWING the approval of the Research and Marketing Act on August 14, 1946, the State agricultural experiment stations, through the four regional associations of directors, began to plan for cooperative attack on major problems in the fields of work that had received special consideration in the development of Title 1 and in the hearings on the bill. Research technicians of the experiment stations met with representatives of the United States Department of Agriculture and of industry and the trade to formulate programs for cooperative research under the provisions of Sections 9 and 10b. A considerable part of this planning was directed to the organization of a program of cooperative regional projects, as specifically authorized by Section 9b3, in fields that had been given first priorities by the regional associations and the Committee of Nine. As a partial result of the planning, twenty-five regional marketing projects were developed that will be participated in by the States in the four regions. These projects pertain to the marketing of live-stock and livestock products, milk and dairy products, poultry and poultry products, fruits, vegetables, potatoes, and cotton.

At the time plans were made for the development of the regional projects, consideration was also given to other fields for the use of later increments of the Regional research funds or for immediate attack under the direct grants to the States provided for under Sections 9b1 and 9b2. A considerable portion of the direct grants was also earmarked for the support of projects to be set up under Section 9b3, which provides for cooperative regional research.

Although not all State plans have been entirely completed, information available at this time shows an estimated use of \$960,931 of Section 9 funds for marketing research or about 38 percent of the \$2,500,000 appropriated under Section 9. Based on funds actually available to the stations for expenditure, which excludes the items of \$75,000 for administration, \$5,000 for the Committee of Nine

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947.

expenses, and \$10,460 for Alaska, the percentage is just slightly under 40 percent. This greatly exceeds the 20 percent prescribed in the law to be used for marketing research, and is an indication of the importance attached to this field of work by the States.

A further analysis of the funds to be expended on marketing research by the States, indicated also the importance placed on the cooperative regional approach to marketing research as prescribed in the legislation. Not only have \$256,200 of 9b3 funds been designated for use in regional marketing research, but approximately 80 percent, or \$550,683, of the direct grants used for marketing research are for work on the seven commodities supported by the regional fund. This is not to say that all of the \$550,683 of 9b1 and 2 funds above mentioned have been allotted to regional projects, for some nonregional projects have been submitted by the States that will contribute to and supplement the regional projects. Actually it is contemplated that about two and one-half dollars will be expended in regional marketing research to each dollar expended on nonregional marketing projects.

Now let us devote the next few minutes to the number and kind of marketing projects that have been submitted by the States under the new legislation. To date, and not all States have submitted their complete programs, 183 new marketing projects have been submitted. One hundred and twenty-six of these projects are integrated and coordinated parts of the regional studies, and 57 are not. On a geographic basis, the Northeastern States have submitted 40 projects of a regional nature and 8 that are nonregional in character. The Southern States have submitted 38 regional and 26 nonregional projects, the North Central States 28 regional and 21 nonregional, and the Western States 20 regional and 2 nonregional projects.

In the main, these projects have been well conceived and carefully developed. In evidence of this point, 163 of the 183 projects submitted have either been approved or recommended for approval, while twenty are being held for clarification or slight revision.

On a commodity basis, there have been submitted 23 regional and two nonregional projects on the marketing of livestock and livestock products; 24 regional and six nonregional projects on the marketing of milk and dairy products; 27 regional and two nonregional projects pertaining to poultry and poultry products; 14 regional and 12 nonregional on fruit marketing; 8 regional and 11

nonregional on vegetables; 19 regional and one nonregional on potatoes; and 11 regional and one nonregional projects have been submitted on cotton marketing.

In addition to the above, 22 nonregional projects have been submitted covering a broad field of marketing problems. Five of these projects have to do with tobacco marketing; three pertain to the marketing of grain, hay and seeds; three are on the marketing of forest products; and one each on rum, nuts, sugar cane, marketing potentials in selected areas, a general price analysis of agricultural products, agricultural marketing policies, effectiveness in disseminating agricultural marketing information, a business analysis of farmer's marketing and purchasing associations, consumer acceptance of certain foods at retail, methods of sampling for study of consumer demand, and the interest of agriculture in world trade. All of these projects have been developed within the broad definition of marketing as set forth under Section 203 of the Research and Marketing Act. It is this definition that has been accepted, for the time being at least, by the Committee of Nine and the Office of Experiment Stations to determine what should and should not be classified as marketing research.

You will be interested, I am sure, in a brief summary of the vast array of marketing problems toward which research will be directed under the projects submitted. Although a number of projects will give consideration to several problems, I shall endeavor to point out those problems that have been given attention most frequently. The problem of quality, its improvement, control and preservation is being given greatest consideration; to be closely followed by the problem of price, pricing policies, formulas, patterns and plans; marketing and merchandising methods and their appraisal; marketing costs, margins and cost relationship, service and servicing; market outlets for agricultural products; consumer demand, preference and acceptance of agricultural products; marketing and handling practices; market value of products and returns to growers; the problems of processing, storage, and transportation; preparation for market, including containers, packaging, grades, grading, and standardizing; factors affecting distribution, consumption, food habits of people, and utilization of food; demand, supply, surplus, production adjustments, governmental programs; market losses and spoilage; volume as related to efficiency in marketing; regional, inter-regional and international competition; marketing

facilities and equipment for the efficient use of labor and equipment in the marketing process.

These are the problems toward which the new marketing research programs will be directed by the States. I am sure you will agree that new information growing out of the proposed studies should be of great importance in helping to solve the problems above mentioned. But some of you may say this is not new research, it is the same kind of research that has been done in the past. On this I would beg to differ. It is new research when viewed in the light of time and place economics. True, many of the problems that confront us are old, but have not been studied by many States because of the lack of funds. Others are new, having grown out of recent situations and developments, and by the same token still others have taken on new meaning and significance.

In conclusion, I should like to state that perhaps one of the most important features in the whole program is the emphasis on the cooperative approach to research. Although many States in the past have had the opportunity of working together on regional problems, the new Act makes possible a much larger opportunity for cooperation. In fact, the way is now open for coordinated research on a greatly enlarged scale in which all who may have something to contribute can play a part. Much evidence bears out the fact that this procedure is already under way. Not only are economists across State lines working together on these marketing problems, but dairymen, poultrymen, livestock specialists, horticulturists, plant pathologists, engineers, and other scientists including chemists, physicists, and nutritionists are taking an active part in the marketing projects both in leadership and advisory capacities. Furthermore, in the case of most of the regional and some of the nonregional projects, the various agencies of the United States Department of Agriculture and representatives of the trade and industry have cooperated wholeheartedly in developing the project outlines, and have pledged themselves to participation and assistance during the conduct of the studies. Without such support, much of the work contemplated would not have been possible.

A good beginning has been made, and we are all looking forward to the time when the results of our studies can be applied to the problems at hand, and when future increments under the legislation will be appropriated to permit both the expansion and intensification of this important work now getting under way.

REGIONAL AND INTERREGIONAL COOPERATION IN DAIRY MARKETING*

GEORGE F. DOW

Maine Agricultural Experiment Station

CONSIDERABLE dairy marketing research work had been undertaken on a *regional* basis for a number of years prior to the enactment of the Research and Marketing Act of 1946. *Inter-regional* cooperation was begun on an effective basis between the Northeast and North Central States, starting at a joint meeting in Chicago on May 8, 1945 approximately two years prior to the first conference to consider regional projects under the Research and Marketing Act of 1946.

The New England Research Council is an excellent example of regional cooperation which was started more than 20 years ago, and has continued effectively throughout this period in coordinating the dairy marketing and other research work of the New England States. In this organization, the opportunity was provided for an exchange of ideas and crystallization of plans at the annual meetings; through specialized committee assignments, and contacts with the Council Secretary. Because the Secretary also served as a representative of the Bureau of Agricultural Economics, coordination was achieved not only between the 6 New England Experiment Stations, but also with B.A.E.—a most happy cordial relationship of the highest degree of cooperation. Many projects have been undertaken cooperatively by the state workers and by the Secretary of the Council on behalf of the various states.

Another example of regional cooperation in the Northeast is that of the Northeast Dairy Conference, which provides for joint action on dairy problems, with special emphasis to the problems of Cooperatives serving the dairy industry. The work of the dairy marketing research men of the Northeast has been closely coordinated with the work of various committees of this Conference. Committee problems have included those of uneven milk production; dairy price plans, including the problem of parity prices; milk distribution efficiency, including trends under wartime conditions involving every other day delivery of milk on retail routes. In this latter phase of work, for example, a coordinated study was made to

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947.

include trends from October 1941 to October 1944 for milk dealers in Upstate New York, Boston, and Portland. Later information for other markets supplemented these studies and was instrumental in continuing in the Northeast the wartime practice of every other day delivery.

If time permitted, other examples of regional cooperation could be cited including that in other areas with which many of you are better acquainted than myself.

Interregional cooperation, in contrast to that on a regional basis, was undertaken on an effective basis by Directors Noble Clark and C. E. F. Guterman who called a joint conference at Chicago on May 8 and 9, 1945, including workers from the Northeast and North Central States. This included two groups: one of dairy farm management workers who are progressing in certain fields of cooperative endeavor, and the other consisted of dairy marketing research men. The Marketing Committee exchanged ideas and outlined the more important fields of dairy marketing in which more research work was most urgently needed. A subsequent committee in September 1945, including two workers from the Northeast States, two from the North Central States, and one from the Bureau of Agricultural Economics, further outlined the work needed and submitted this outline to each of the Northeast and North Central Stations for their suggestions; what work had been undertaken or completed by each Station; which problems were considered most important for future work; and new lines of work in which work was expected to be undertaken. The replies from the various stations served as the basis for active work that was undertaken cooperatively on an interregional basis, with specific plans made at a conference in Pittsburgh on May 22 and 23, 1946, including 15 research men from the Northeast and North Central Stations and 2 from the Bureau of Agricultural Economics. The specific work undertaken at this meeting included:

Preparation of a statement released July 12, 1946 on "Ways to Meet the Immediate Problems of Seasonality in Production and Marketing of Milk."

A second phase of the work undertaken by the interregional group was the appointment of a committee including Dr. MacLeod of B.A.E., Dr. Rudy Froker of Wisconsin, and Dr. Leland Spencer of Cornell to draft a report summarizing available information on "The Market Demand for Dairy Products, Including an Evalua-

tion of Alternative Public and Industry Policies for Maintaining and Expanding Market Outlets." This was prepared in preliminary form in January 1947, was redrafted by May 1947, and is now being completed for publication. A total of over 17,000 copies have been ordered for use by the various Experiment Stations in the Northeast and North Central States.

The need was recognized for much additional information concerning the problems of uneven milk production. Consequently three subcommittees were set up to prepare reports summarizing all available material on this subject. Subcommittee 1 was to study the Effect of Seasonal Price and Production Patterns on Producer Returns. Subcommittee 2 was assigned Effect of Seasonal Price Plans on Producers' Milk Deliveries. Subcommittee 3 was responsible for analysis of Procurement of Supplementary Milk Supplies. These committees met and organized their work on an interregional basis, with committee coordination being achieved by Dr. T. M. Adams, General Chairman, and the late Dr. Alan MacLeod who was assigned by B.A.E. on a part-time basis to assist the committees in their work. The program of work has been delayed for several reasons, including the untimely death of Dr. MacLeod. Much progress, however, has been made and it is expected that the reports will be completed this fall, now that Dr. Merton Parsons has been assigned by B.A.E. on a temporary basis to assist in this work.

The above summary which has been developed in rather detailed form indicates that a considerable amount of time and thought has been given to cooperative coordinated research between states, also involving cooperation with the United States Department of Agriculture; and that considerable interregional dairy marketing work was in progress prior to the Research and Marketing Act of 1946. This background information is important in explaining the interregional project recommended under the new legislation of 1946.

*Interregional Dairy Marketing Project for 9b3 Funds Under
Research and Marketing Act of 1946*

A meeting was called at Cincinnati for January 22-23, 1947, which developed an interregional project to include all four areas of the United States. The project recommended by the 25 workers attending, including 3 from the United States Department of Agri-

culture, was based primarily on the most important fields of work indicated in earlier interregional meetings. Four important phases of dairy marketing research were recommended under the general project heading of "Maintaining and Expanding the Market for Dairy Products." This included (1) Consumption and demand studies, (2) Pricing of milk and milk products, (3) Seasonality of milk prices and supply, and (4) Lowering marketing costs. Obviously these four sections include work of interest to all four areas of the United States. They are major problems in marketing dairy products, and new projects to be undertaken by most States could be included in the coordinated program with cooperation within an area and between areas.

This interregional project was approved by the Experiment Station Directors, and by the Committee of Nine under the Research and Marketing Act of 1946. The final announcement of allocations from 9b3 funds was received late in August 1947 and included \$33,300 for dairy marketing work, which was 13% of all marketing funds. These allotments represented 24% of all 9b3 marketing funds allotted for the Northeast, 16% for the North Central States, 8% for the Western States, and 4% for the South. The number of states represented includes 10 from the Northeast, 9 from the North Central area, and 4 from the Western area—all of which are included in the general interregional project. In addition, two of the Southern States were allotted 9b3 funds for seasonal milk problems, which also could have been included under the general project. The amount allotted per state was from \$800 to \$2000.

In addition to 9b3 funds for cooperative dairy marketing work, the United States Department of Agriculture has tentatively allotted a total of \$28,000 from 10b funds for similar cooperative work with the States. No further indication has been received as yet as to the phases of cooperative work to which the 10b funds will be allotted, other than a request to the states, extended by Director Meyer through Dr. Trullinger of the Office of Experiment Stations dated August 25, 1947, "to invite representatives of the Federal Agencies to participate in the meetings planning the regional projects." It is of interest to note that the amount of 10b funds allotted to dairy marketing also is 13% of all 10b marketing funds, —or the same ratio as allotted for 9b3 funds. However, the proportion of the allotment to the Southern States was 32% of all U.S.D.A.

dairy marketing 10b funds as compared to only 8% of the 9b3 funds.

Tentative reports received to date from most cooperating states indicate about eight states planning cooperative work on consumption and demand, about eight on pricing of milk and milk products, about seven on seasonal production problems, and about five on studies for lowering marketing costs. Evidently considerable work will be done on each of the four major dairy marketing problems. Material received to date indicate no problem of duplication between states. Cooperative work has been indicated by several states in the Northeast on the problems of milk pricing. Competitive supply conditions among milk sheds indicates the need for a coordinated study involving the cooperation of research men covering such markets as Boston, New York, and Philadelphia, and also some of the more important secondary markets. Another example of coordinated cooperation is indicated in proposed studies for lowering marketing costs. In the Northeast area, the cooperating stations would not each conduct a similar study of marketing costs, but each would undertake a study of a separate step in the marketing setup so that the various studies would fit together to give a more complete answer as to methods of more efficient marketing from the producer to the consumer. For example, one state would study country milk plant operations, another would consider the operation of producer-distributors, and a third state would analyze distribution costs of the dealers in the larger cities. Inasmuch as the cooperative dairy marketing project is set up on an interregional basis, cooperation also may be achieved between areas, as for example between Vermont and Indiana, both of whom are contemplating studies of country plant operation.

*How to Coordinate and Organize Most Effectively the Work of the
Various States and That of the United States Department of
Agriculture for the Work Ahead*

The cooperation among the states has been excellent as evidenced by regional and interregional projects prior to 1946, and by the fact that agreement was reached not only regionally but on an interregional basis. The States in their planning and the work undertaken also have consistently invited in representatives from U.S.D.A. who have given valuable assistance that has been gladly received. The long-time cooperation by the States prior to 1947 made possi-

ble the preparation of tentative projects at an early date for 9b3 projects. Considerable delay, however, has been caused in undertaking these projects because of the delay of Congress in making appropriations and the subsequent allocation to States.

The State Experiment Station workers are awaiting with interest the development and announcement of plans contemplated by the U. S. D. A. in the work of the Federal Agencies, and how such plans will be coordinated with those of the States. The Administrative Advisor for the Northeast has received the Advisory Dairy Marketing Report which covered the entire field of dairy marketing, and the announcement received the last of August 1947 that \$28,000, allotted by areas, has been tentatively scheduled from 10b funds for dairy marketing. Perhaps it would be helpful if the Experiment Station workers were included on the Commodity Committees appointed to advise with the U.S.D.A. in setting up their program of research. At least the State workers are anxious to learn how the Federal and State programs may be more effectively coordinated.

Many of our State workers will be starting work in the near future on their 9b3 interregional projects. If this work is to be more fully coordinated not only between states, but also with the 10b funds from the United States Department of Agriculture, plans should be developed promptly. The dairy marketing men of the Northeast probably will hold a regional meeting sometime in October to coordinate our projects to a further extent. I can assure you that we will invite representatives of Mr. Meyers office and Office of Experiment Stations who also are responsible for coordinating the dairy marketing research. At a special meeting last night Harry Trelogan of Mr. Meyers office indicated a desire for a more definite coordination of our cooperative work. I am sure that he will receive our fullest cooperation. We also hope that he can keep us more fully and promptly informed, through the Office of the Experiment Stations, concerning project plans by the various agencies in the U.S.D.A. Our State Experiment Stations will gladly cooperate on any reasonable requests or changes in plans that may be suggested in adequate time before projects get under way.

We trust and have confidence that a two-way road of full cooperation may be established between State and Federal Agencies. The marketing problems of the next few years may be greater than most people expect. Certainly the funds available for dairy marketing research are less than we had hoped for or expected. We must work together if we are not to be "too little and too late."

TEAM WORK IN MARKETING RESEARCH*

CHARLES W. HAUCK
The Ohio State University

APPPLIED marketing research can score more touchdowns if the game is played on a commercial gridiron. If research and business are both on the same team, its ground gaining ability is considerable. A high order of teamwork is called for. Each can provide talents the other lacks.

Research agencies rarely can create the practical and sometimes elaborate distributive and marketing facilities required to test a given hypothesis, and it would be unwise to try to duplicate existing commercial facilities for this purpose if satisfactory arrangements can be made for the desired studies in cooperation with industry. Producers and distributors, on the other hand, rarely are skilled in research methodology, nor can they wholly free themselves from commercial distractions and short range interests.

Though both may be aware of the need for an early solution of some critical marketing problem, neither the researcher nor the distributor may be able to do much about it alone. Together they may make a very significant contribution to public and private welfare.

Much Food Wasted

Food wastes, for example, arising from damage and spoilage losses in distribution, are a matter of great concern both to the general public and to the industries that produce and market these products. It is shocking to find authorities agreeing that about one-fourth of the food we produce never is converted into human nourishment but is discarded or wasted somewhere along the line, on farms, in packing houses, in processing, in transportation and storage, in wholesale warehouses, in retail stores, in the homes of consumers and in public eating places.

In view of a world scarcity of food, these estimates are unusually staggering and provocative. Then, too, inasmuch as food that is salable and usable has to bear not only its own costs but also all costs and losses associated with these wastes, lower costs of distribution may be expected to follow if wastes are reduced. Challenging

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 2, 1947.

re-examination of conventional practices at all points is called for to determine wherein these contribute to waste needlessly and which of them may be effectively modified and improved.

Research and Business Team Seeks to Reduce Wastes

In hope of reducing wastes and losses in the distribution of fresh fruits and vegetables, and with the further purposes of turning some of these items to self-service, and bringing to city consumers fresh products in vine-ripened or tree-ripened stages or at the optimum degree of succulence and palatability, the Ohio Agricultural Experiment Station early in 1945 entered into a contractual arrangement with the Great Atlantic and Pacific Tea Company whereby the wholesale and retail produce operations of the company in Columbus were thrown open to study and controlled experimentation. The company has helped to finance the project by an annual grant-in-aid to the Station. The contract has twice been renewed and is now in its third year.

This joint venture has provided opportunity to carry on the desired market research in a commercial atmosphere. The studies are being conducted in realistic surroundings. An attempt is made to come to grips with genuine over-the-counter marketing problems in the market place instead of under more or less artificial or simulated conditions in the laboratory.

Though the prime purpose of the research is to lower wastes and spoilage and to prolong the original fresh palatable quality of the produce, the more spectacular and conspicuous phases having to do with prepackaging in consumer units have caused the project to be known popularly as "The Columbus Prepackaging Experiment."

Prepackaging Emphasized

"Prepackaging" has certain descriptive weaknesses, but has come to be accepted as identifying the process whereby fresh fruits and vegetables are prepared for retail self-service. This two-fold process (1) subjects the produce to whatever sorting, washing and trimming may be necessary to prepare it partly or completely for kitchen or table use, and then (2) transforms it, either with or without precooling and refrigeration, into self-service items by packaging in prepriced, labeled, closed, usually transparent containers, each holding a customary consumer unit (a pound of snap

beans or tomatoes, a bunch or two of topped carrots, a head of cauliflower, etc.).

Facilities of the company in Columbus are serving as a sort of pilot plant. In the main the merchandise is received at the warehouse in the usual way from local and distant sources packed in conventional shipping containers—baskets, hampers, crates, and the like. A mechanized, air-conditioned packing room and a cold storage room have been set up in the warehouse and here the produce is removed from the original containers and is prepackaged in shallow paperboard trays or paper U-boards or transparent bags. The bags then are sealed by hand and the trays and U-boards are over-wrapped and sealed in moisture-proof transparent film by machine. Each package is automatically labeled, coded with the packing date, and marked with weight and price when sealed. The produce then is stored briefly at 40–45 degrees Fahrenheit while awaiting shipment to the retail stores.

The retail produce departments in the company's Columbus supermarkets have been equipped with open-top self-service type mechanically refrigerated sales and display cases, and these are stocked with prepackaged consumer units. Temperature in the display compartments of these cases (despite their open tops) is usually maintained at about 40–43 degrees. Reserve stocks of packaged goods are held at 37–40 degrees in large storage chambers in the base of the cabinets. The only attention required is for the retail attendants to keep the displays neatly arranged and to replenish them occasionally from the reserve stock, seeing that produce moves in the order in which it was packed.

The commercial facilities thus made available obviously could not have been reproduced by the Station for independent investigations. The research talents and technical training and equipment required were not to be found within the ranks of the company. So a partnership was created for the special purpose of attacking these related and important problems. Each party contributed something of its stock in trade, not the least of which is the prestige attached to its special position.

Results Published

The Station has insisted, of course, that the results must be released to the public. This was readily agreed to by the company, thus insuring that any beneficial findings would be made accessible

to all and expediting their widespread application. The nature of the investigations is such that almost of necessity they are carried on as in a goldfish bowl. Business competitors and much of the general public have continuously demonstrated an alert interest in what is going on, and to the credit of the company all have been welcomed impartially not only in the stores but also in the packing room.

As promptly as possible results have been published by the Station. Beginning with the May-June, 1946 issue of its Bimonthly Bulletin, now known as *Farm and Home Research*, reports of some phase of this research have appeared in almost every issue.

A detailed account of the results of this project is not the purpose of this paper. Only a few of the more significant matters can be touched upon here.

1. *Wastes Reduced*

Retail spoilage and damage losses have been sharply reduced by prepackaging and refrigeration. Comparisons of selected commodities were made in 1946 and 1947 between conventional bulk goods in open counters, not refrigerated, and identical items packaged in sealed, transparent consumer units and displayed in refrigerated sales cases. On six commodities-carrots, cauliflower, celery, sweet corn, head lettuce and tomatoes-retail losses in 1946 were 17.3 percent, by weight, for conventional bulk handling as against only 1.8 percent for prepackaged display. Repeated in 1947, these losses were 17.7 percent and 1.5 percent respectively. Aggregate losses recorded on 31 fresh fruits and vegetables in 1947 amounted to 8.2 percent when handled in bulk without refrigeration as against 1.8 percent when prepackaged and refrigerated.

How much of this gain was due to prepackaging and how much to refrigeration is not known, but experience has demonstrated that best results were attained with a combination of both. Refrigeration retarded ripening and deterioration; sealed transparent wrappers aided in prolonging shelf life and protected the foods from shriveling and weight loss due to dehydration and from pilfering and physical damage caused by handling. Prepackaging also contributed to sanitation and to merchandising advantages of brand identification, preweighing and pricing, and self-service.

Trimnings and damaged foods discarded in the prepackaging process amounting to about one-fourth of the gross weight of produce

received had little bearing on the comparison. Amounts disposed of in that process were mainly excess leaves, tops, husks and stems left to protect the goods in shipment, inedible parts that otherwise would have been removed by the retailer in the course of conditioning the produce for display or by the consumer after purchase. Removal of these parts made no change in the number of salable units or in the quantity of edible food.

Prepackaging may be viewed as a processing operation in that the character or form of the product was changed in the process of converting the goods into self-service units. Trimmings disposed of in this operation cannot be considered in the same category as losses in bulk goods through trimmings and loss incurred by reconditioning while awaiting sale in the retail store, or eventual complete loss after repeated examination and rejection by patrons. Prepackaging did not create or increase waste; it only localized existing waste which bulk merchandising would have revealed at later stages—retail store and consumer's kitchen. The process may be credited with very real reductions of waste.

2. Shelf Life Prolonged

Retailers of fresh fruits and vegetables have a vital interest in what is known in trade parlance as the "shelf life" of the perishables they handle. Success or failure in the retail produce department is largely dependent upon the shelf life of the goods offered. The term may be defined as the period of time during which the merchandise after being received in the store remains fresh, attractive, and sufficiently appealing to patrons as to be readily salable without price reductions.

Interest of the retailer in shelf life arises from the close relationship it bears to his alternatives of (1) profits from a rapid turnover rate and large volume resulting from repeat sales to satisfied customers or (2) losses from reconditioning, price reductions, and disposal of part of his purchases in the form of garbage rather than by way of the cash register. He is fully aware that his margin of safety is narrow with soft fruits, leafy vegetables and others, and that potential profits may quickly change to losses, often through circumstances beyond his control.

In the hope of avoiding losses, he may limit his offerings to insufficient amounts or may confine his purchases to the less perishable items, or he may too long delay needed trimming or recon-

ditioning and price reduction. Inevitably, this course can only result eventually in loss of trade. More wisely, he can adopt measures to speed his turnover rate and to increase his margin of safety through lengthened shelf life.

However indifferent producers and consumers may be to this very critical problem of the distributor, nevertheless the problem is theirs also. It directly or indirectly affects their welfare. The cost, quality, and variety of offerings available to consumers and quantities sold and prices received by producers are determined to a considerable extent by the manner in which the distributor conducts his business.

To lengthen shelf life is to lower losses. Reduced losses are a matter of general concern. Accordingly tests were run in 1946 and 1947 to contrast the shelf life of representative items both in bulk and in sealed consumer units, when held under room conditions, exposed on beds of cracked ice, and mechanically refrigerated.

The 1946 tests included 14 commodities—root crops, green and leafy vegetables, citrus and deciduous fruits. The 1947 tests covered snap beans, broccoli, cauliflower, celery, endive, head lettuce, and green peppers.

On the whole, mechanical refrigeration alone helped greatly in maintaining the salable weight and lengthening shelf life. Results obtained by prepackaging alone were about the same as with refrigeration alone in terms of lengthened shelf life and substantially better than with refrigeration alone in terms of maintaining salable weight. Packaging and mechanical refrigeration together retained the perishables within 95 percent of the original weight for periods ranging from 6 to 24 days; or in other words, from 2 to 7 times longer than any of the other treatments. This combination of factors extended the shelf life of all the products tested much more than any other combination tried in these tests. Sharing second position were prepackaged produce refrigerated with cracked ice and bulk produce under mechanical refrigeration.

3. *"Pay Loads" Can Be Increased*

Opportunities seem abundant for increasing pay loads in the shipment of some fresh vegetables by reducing tare weights and removing more of the inedible portions before packing and shipment. The project has no achievement to its credit in this direction beyond the accumulation of data disclosing some of these opportunities to reduce excess shipping weights.

During a 2 months period representative sample shipping containers were selected at frequent intervals from arrivals of 27 fruits and vegetables. Each was weighed and unpacked to determine its gross shipping weight, tare weight, weight of salable contents, and (in the case of prepackaged items) the weights of trimmings and discarded damaged produce.

Of the 16 commodities subjected to prepackaging, salable contents after trimming ready for kitchen or table use comprised, on the average, 71 percent of the gross weight when received at the wholesale warehouse. Tare weights averaged 14 percent and weight losses due to trimming and damage from decay, shriveling, mechanical means and other causes averaged 15 percent.

Cabbage, citrus fruits, dry onions and potatoes in bags showed tare weights of less than 1 percent, that is, over 99 pounds of produce were carried by less than 1 pound of package. At the other extreme, shallots or green onions in iced barrels required 41 pounds of package and packing materials to move 59 pounds of produce.

Head lettuce serves as an example. From western sources it comes to market practically the year around, packed in crates holding on the average some 5 dozen heads with snow ice between the layers of heads in the crates and weighing about 90 pounds per crate. Of this gross amount the crate, liner and ice (after arrival)—or tare weight—, averaged over 19 pounds or more than 21 percent. The loss from trim and damage in preparing the lettuce for retail display averaged almost an identical amount, or another 21 percent. The balance was salable lettuce. It weighed a little over 52 pounds or slightly less than 58 percent of the gross shipping weight. Obviously the entire cost of handling and distributing the lettuce had to be borne by approximately 58 pounds of each 100 pounds gross shipping weight, or in other terms, by 73 pounds of each 100 pounds of lettuce shipped.

Any improvement should be welcome that would reduce shipping weights to more nearly the weight of the salable goods. Measures that would lessen the need for bulky protective packaging and at the same time prolong the original quality and condition of the merchandise would be reflected in higher pay loads. That is, if the retailer did not have to throw out as waste any considerable part of what he pays for, if practically every pound of fresh fruits and vegetables delivered to him were salable and usable, his costs and profits could be distributed over the entire amount instead of hav-

ing the burden carried by 50, 70 or 90 percent of the lot. Transportation and handling expenses would be lower. Kitchen drudgery and garbage problems of the consumer would be simplified, and waste disposal services could be performed by the community for less cost.

4. Approved By Consumers

Ready consumer acceptance of prepackaged, refrigerated produce has been very encouraging. In certain retail stores results have been spectacular, both sales volume and net profits having risen after conversion from bulk retailing.

Overall dollars and cents results have been such that the company already has expanded the operation from 1 store in 1945 to all 10 of its stores in Columbus and 2 outside Columbus, and is now in the process of greatly enlarging and improving and further mechanizing its prepackaging facilities, and transferring them to a newly acquired building where they will occupy more than 10 times as much floor space. When this has been accomplished, prepackaged produce will be offered in all stores of this unit, almost 100, just as rapidly as they can be equipped with refrigerated cases.

In the meantime costs and returns have been subjected to continuous examination by means of a quarterly comparison of sales and expense records of the 10 Columbus stores against 10 other stores of this unit outside Columbus handling produce in the conventional bulk manner. Despite no increase in prices to consumers, savings and increased sales volume associated with prepackaged produce have more than paid the added costs. Yet cramped quarters and the resulting inefficient operation in the packing room to date prompt the belief that unit costs will be lowered after the expansion is completed.

Greater consumer satisfaction inspired by prepackaging and more sales volume at lower unit costs may mean eventually lower rather than higher retail prices. The retailer's costs and profits are extremely sensitive to any measure that permits them to be distributed over a larger portion of the produce he purchases, by reducing the amounts going out the back door as garbage.

Some Prepacking Done At Shipping Points

Prepackers are springing up all over the United States. Some are new, others are established concerns that are modifying their operations to include prepackaging. Some are located at points of origin, near the fields where the produce grows. Mostly, for the present at

least, they are in terminal markets near the retail stores and the consumers who use the goods. Among these pioneers are independent and cooperative groups of growers, shippers, jobbers and service wholesalers, chain and independent retailers, and specialized packing companies. Much experimenting is going on.

Opinions differ as to whether prepackaging is to be eventually a function of the shipper or receiver, and only time and experience can settle the question. Probably no one doubts the commercial practicability of packing so-called "hardware" items such as apples, potatoes, citrus fruits and dry onions in consumer units at distant sources. It has been going on for a long time. Technological advances already a reality or in sight may ultimately permit equal success with more perishable produce. But for the present, in order to insure freshness and good quality in prepackaged retail displays, it is necessary to trim and prepackage most goods after arrival in terminal wholesale and jobbing markets, and with some highly perishable items the necessity for a last look even requires a minor amount of prepackaging by the retailer. The development in Columbus to date is predicated upon the belief that for some time the final sorting and preparation and packaging will have to be done for the most part just before the goods go to retail. The company's investments in the venture are guided by that conviction.

Yet other suppliers are being encouraged to furnish as much as they can. A few items in limited quantities are being received in acceptable form and condition from time to time from both local and distant shippers. Ohio growers have supplied some prepackaged apples, peaches, radishes, carrots and sweet corn. West Virginia growers have shipped some prepackaged broccoli and cauliflower. Packers in Columbus and other nearby cities have furnished some prepackaged spinach, tomatoes and cut vegetable salad combinations. Experimental shipments of strawberries from Tennessee and peaches from South Carolina have been made to Columbus, and arrangements have been made for trial shipments of vegetables from Florida and California. The first experimental carlot of pre-cooled and prepackaged California vegetables—broccoli, cauliflower, celery, carrots and head lettuce—is en route to Columbus today from the Western Growers Association's packing house at Molus Station, California. It will receive a thorough examination by our staff upon arrival, and sample packages will be kept under observation to determine how well and how long the contents remain usable.

Teamwork Needed With Industry And Other Research Agencies

All these shipments move through the usual commercial channels. The company's representatives negotiate for the merchandise and handle the accounting at both ends of the line in the customary way. In some cases however, in addition to the shipper, the company and the Ohio Station, still a fourth party has a hand in the transaction—the Agricultural Experiment Station in the State of origin. The experimental features of the shipments require supervision and control by trained research workers at origin as well as at destination. This introduces another very important aspect of the teamwork involved in the project.

If delivery of prepackaged perishables in good condition from distant points of production can be assured, gains may be expected to arise from the use of lighter packages and savings in shipping weights and transportation costs due to trimming at the source. If these potential gains are to be realized, much further experimentation is indicated.

More research agencies need to be tied in at proper points. More commercial interests should take a hand—not only packers and distributors, but transportation agencies, and manufacturers and suppliers of containers and packaging materials, mechanical equipment, refrigeration and precooling facilities, mold inhibitors and sanitation equipment and supplies, and others. If the research is to be done effectively and economically, it should be closely integrated and directed, with appropriate contributions being made by each of the participating research agencies and commercial concerns.

Teamwork Needed Between Social And Physical Scientists

However encouraging results to date may be, there are hazards and pitfalls at many points that dare not be overlooked. Much remains to be learned about prepackaging before this promising new industry can be said to have outgrown its infancy. Prepackaging introduces some new and intricate unknowns.

Distribution of fresh fruits and vegetables by orthodox means is none too simple, but when these goods are sealed in closed consumer units new physiological and economic complexities arise. This conversion process calls for more than a wrapping machine and a stock of packaging supplies. Problems associated with shipment and handling of such highly perishable items as tree-ripened peaches

or husked milk-stage sweet corn apparently cannot be eliminated by consumer packaging alone. They are even increased. Living, respiring plants or parts of plants cannot be tightly sealed in unventilated containers without creating new problems calling for new solutions.

Questions that remain unanswered are manifold and varied. They may be catalogued roughly as biological, technological, or economic, but for the most part are so interrelated as to be practically incapable of segregation. The subject merits the attention of the economist, but it also is crying for study by the horticulturist, the biochemist, the engineer, and other specialists.

Separate isolated attacks upon selected fragments of the problem are not likely to yield results in any reasonable time. A more realistic and fruitful approach would be to bring the talents and facilities of both the social and physical scientists to bear on the matter by means of a broad and closely coordinated program of research, thus introducing another form of teamwork.

Experience with this so-called "Columbus Experiment" to date has convinced us that whatever the contribution of the cooperating commercial agency, in a joint program of this kind the investigations must be directed by a qualified research agency. Though full consideration must be given to the commercial factors involved, nevertheless final decisions on problems to be explored and methods to be used must be made by competent, practical research personnel rather than by those whose first interest must lie in their commercial duties and responsibilities and whose training has been elsewhere than in the field of fact-finding.

Our experience has taught us also that we have no more than scratched the surface. Prospective social gains of much significance may be anticipated, provided the research is sufficiently comprehensive and imaginative, and provided the quarterbacking and the teamwork are good. Some gaps in the lineup need to be filled with a few of the brawny, skillful and eager players that so far have not been called in from the bench—industries with related interests, other state experiment stations, the U. S. Department of Agriculture, certain of the physical scientists.

The limited resources now employed in this project are no longer commensurate with the magnitude and complexity of the game. The stage has been reached where the team needs to be expanded and the playing field enlarged.

COLLABORATION BETWEEN MARKETING ECONOMISTS, ENGINEERS, AND OTHER SPECIALISTS*

R. W. HOECKER

Bureau of Agricultural Economics

MANY research workers in such fields as economics, engineering, plant breeding, and pathology find that, even though they work on different phases of the same marketing problem, they depend upon the producer or the distributor to combine their research results into a workable pattern. However, it is natural to suppose that producers and distributors usually act in self interest and seldom act at all if the change means reducing their profits. Often substantial savings in distribution can be realized only by reorganization or curtailment of certain agencies of the marketing system. Any such reorganization or curtailment of functions is likely to be met by opposition from the established agencies that are disadvantageously affected.

Research workers usually are not to blame for not taking a broader approach to the problem. Because much of the present research is done by graduate students and by other relatively inexperienced short-time workers, projects should be divided into small segments of a larger problem. But even though the administrator is fortunate enough to have experienced full-time research men on his staff, it is administratively sound procedure to keep projects relatively small so that results may be shown in a relatively short time. The shortcomings of most marketing research become evident when the researcher publishes his findings with little regard as to how the results will fit into the entire marketing system. Specialized workers in departments with specific fields to be covered find it difficult to appreciate fully much more than the one segment of an industry. If an over-all approach is to be taken in the solution of marketing problems, the initiative must come from those individuals who are responsible for the direction of the research. They must furnish the organized leadership and the research must be integrated under their direction so that when the project is completed the results will fit into the marketing pattern.

The marketing economist must perform a further function than

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research on specific parts of a problem. A principal determinant of the success or failure of any business is the correct combination of productive factors. This is as true for the distribution industry as it is for the production industry. The marketing economist must be to the distribution industry what a farm-management specialist is to growers or what the production manager is to the factory.

The function of the marketing economist is to make an efficient pattern out of all steps in distribution as well as to improve the individual steps. The distribution mechanism is delicate and complicated and a change in one part of it may require adjustments in many other parts. In practice, even though the private agency wishes to change its way of doing business in favor of an obvious improvement, it may be prohibited from making the change by the reluctance of other agencies to cooperate.

The effect of change upon the marketing system means that research workers should be in a position to plan their projects and to fit their results into the distribution pattern. Considered by themselves, the researcher's results may at first appear the best answer to a particular problem but, when the entire industry is considered, the better solution may be one that appeared much less desirable at first examination. The plant breeder becomes interested in growing the variety of potato that yields the most under the given set of climatic, soil, and disease conditions. The resulting variety of potatoes, however, may not ship satisfactorily or it may be unacceptable to the housewife. When all the facts are known and each is given proper evaluation, a better variety of potatoes for the area in question may be one that yields considerably less than the variety first considered. The variety finally selected may have been known only to the plant breeder, or after knowing the full facts, he may have had to develop an entirely new variety which probably he would not have done had he been working independently.

In the last several years, the Bureau of Agricultural Economics has applied the above principles to several of its studies. These studies are roughly divided, mainly on the basis of degree of complexity of the cooperative arrangements, into three groups. For purposes of clarification, an example of each of these groups is given. A Bureau study on air transportation may be used to illustrate the first group, that is, collaboration of the marketing econo-

mist and one other specialist, the two of them issuing a joint report. A study on citrus fruits illustrates the second group of studies, that is, collaboration of the marketing economist with other specialists in the Department of Agriculture. A current study on pre-packaging illustrates the third group, that is collaboration of the marketing economists with other Department specialists, State college specialists, and different segments of the trade.

Research of the BAE on air transportation of agricultural perishables furnishes a clear-cut example of the first group. In the fall of 1943 it was suggested to the Bureau that the many cargo planes which would be available at the close of the war might make feasible the establishment of a sizable air-freight business and we were asked to investigate the possibilities. At that time, air express rates charged by the scheduled airlines ranged from 60 to 70 cents per ton-mile. Obviously, practically no perishables and little else would be hauled at these rates when rail express rates were currently 5 to 14 cents per ton-mile. An engineer who had also a background in airline operation was consulted. It was his judgment that the current rates were much higher than necessary to cover the costs of operating a fully loaded cargo plane. A study was planned, the title of which "Postwar Air Transportation of Fresh Strawberries and Tomatoes from Florida to Detroit, Michigan." Before the potential freight volume could be estimated, it was necessary to arrive at a probable ton-mile rate. This was done by making four principal assumptions, all of which appeared reasonable. These premises were:

- (1) The air carrier is a private operator with eight C-47 airplanes in continuous operation.
- (2) Availability of the specified produce at the growing centers will allow a 100-percent load factor to Detroit with an average 75-percent load factor on return trips.
- (3) Completion of the trips scheduled is 95 percent.
- (4) Air-cargo operation is continuous throughout the year. "Out-of-season" produce from other centers and other air-cargo operations are substituted when the transportation of strawberries and tomatoes by air is not in demand.

Based on these premises, an aircraft consulting engineer was employed to compute costs of operation. The Bureau cooperated by furnishing all relevant material regarding packages, stowage, and schedules. The engineer's results indicated that tomatoes and

strawberries could be hauled for 10 to 12 cents per ton-mile, provided all the premises were fulfilled. The computations made by this engineer were checked by two other competent engineers. The report of this study caused new thinking with regard to air cargo, and I believe it did much to reduce rates from 70 cents to their present low of $9\frac{1}{2}$ cents per ton-mile.

Some studies which illustrate collaboration of the marketing economist with other specialists in the Department of Agriculture originated in the Department's working group on Conversion of Marketing Facilities and Methods. The Bureau led in organizing studies undertaken by this group. The procedure followed was to organize a committee of specialists in each of the various phases of the problem to be dealt with. After the outline of the report was prepared and discussed at some length by the committee, each specialist was assigned the portion of the report which he was best qualified to write. After all sections of the report were completed, one member of the committee assembled the report. This required the elimination of duplication, rewriting of parts, and in general, the making of a readable report.

A specific illustration of these reports is the one which related to "Readjustments in Processing and Marketing Citrus Fruits." The section on potential supply of citrus fruits was contributed by specialists from BAE who were located on the West Coast. Personnel from the Fruit and Vegetable Branch of PMA contributed most of the data on costs, marketing channels, and practices. Specialists from the Bureau of Agricultural and Industrial Chemistry submitted the basic materials on new methods of processing citrus. The section dealing with world production and trade of citrus came from the Office of Foreign Agricultural Relations. The Compliance and Investigation Branch of PMA contributed the section on costs of processing concentrates. The Farm Credit Administration furnished materials on packaging, containers, and grading. Finally, the report was assembled as a whole, with the help of all members of the committee, by a representative of the Bureau of Agricultural Economics.

The Bureau's work on prepackaging fruits and vegetables illustrates the more complicated cooperation between various Government agencies; State colleges; package, film, and machinery manufacturers; growers; transportation agencies; wholesalers; and retail

distributors. The early prepackaging work of the Bureau was done in Kearny, New Jersey, with a chain store company. It was necessary to work with the company engineers to plan a packaging room. As soon as the operation was started, it became apparent that much additional information was desirable regarding temperature conditions in refrigerated cases and storage rooms. The results of the series of tests by Department of Agriculture pathologists were used to redesign refrigerated display cases so that more effective refrigeration could be obtained. At the same time, these pathologists made tests of the effects on the produce of various transparent films. These results were used immediately by the chain store company as guides in their selection of films. Film manufacturers used the results in modifying the properties of their films to make them more suitable. Time and motion studies were made in the packing room to ascertain the more efficient packing methods.

While this work was going on, it was also found desirable through tests to modify the merchandising of the prepackaged produce in the retail stores. In place of two to four produce clerks, it was found that more efficient distribution could be made on a self-service basis, with only one clerk needed to keep the displays in order.

This particular report emphasized the importance of not stopping at the wholesale-retail level. As a result of the study, it became apparent that economies in distribution are possible if the produce is packaged in the production area or if it receives such special preparation in the production area that it is ready for prepackaging at the terminal market. To investigate this further, cooperative arrangements were made with the University of Florida with Florida shippers, with the University of Maryland, with an independent packager and distributor in Maryland, and a chain store company. Plans are to expand the research team, now composed of specialists from these organizations by the addition of an engineer, an economist, and a biologist to be placed directly in the plant of the Maryland packager and distributor.

This plant packages both locally grown produce and produce shipped from Florida. The packaged produce is distributed to Philadelphia, Baltimore, and Washington. Bureau representatives are not attempting to study consumer acceptance of the produce in all these cities but they are making an intensive study of it in

seven Washington chain store outlets. The chain store officials have agreed to see that their produce managers order enough of the packager's output to keep these seven supermarkets stocked at all times. The chain has given the Bureau authority to experiment in merchandising and, to a limited extent, has given leeway to experiment in pricing. The seven stores serve as a retail-store laboratory. At the same time, biologists from the University of Maryland pick up frequent samples from the stores to observe and study the relative keeping qualities. These frequent checks have located trouble and have helped to stop it before it became serious. A horticulturist and an economist from the University of Florida helped the Florida grower and shipper to compute his costs and to find the most efficient methods for shipment.

Results obtained from the group's efforts show, for example, that if cauliflower is properly prepared for shipment in Florida by the removal of all outer leaves and the excess butt, about 40 pounds of curd can be packed in a 50-pound shipping container. This compares with only 7 to 10 pounds of curd in a 50-pound shipping container when the cauliflower is shipped in the conventional way. Results obtained show that sweet corn prepared in the production area for prepackaging at the terminal can have its shipping weight reduced about 50 percent. The husking of the corn also made pre-cooling more rapid than before. When the corn is husked and its tip and butt are trimmed off, many short ears of good quality that are not long enough to pack in the regular way can be used. The short ears are cut down to uniform length for packaging, whereas previously these ears were a loss.

In every instance in which the Bureau has worked on a project in collaboration with other specialists and agencies, the marketing economist has been the coordinating specialist. Usually the marketing economist did most of the planning of the study, doing what research he was qualified to perform and requesting help from the other specialists in those fields in which he was not qualified. Very rarely was a request for help refused. The study was usually complete enough to cover all of the important ramifications of the marketing of the product. The research which was done was directed toward solving specific parts of the complete problem. Results were interpreted in terms of their effects on the complete marketing pattern.

It is not intended to represent that close collaboration of research workers in different fields is a new method of doing research. This has been done in different degrees by many researchers. It is maintained, however, that in the field of marketing research there has been too little cooperation among specialists. If more were done by all specialists concerned with marketing—the term “marketing” is used here in the broadest sense—the research would be more effectively directed toward related problems and the results would more effectively used. Marketing economists would probably soon be guiding industry rather than reporting on results obtained by industry—the position in which they now find themselves.

DEVELOPMENTS IN POULTRY MARKETING RESEARCH*

HERMON I. MILLER

Production and Marketing Administration

IT IS difficult to present my topic without the feeling that I am trespassing upon ground which rightly belongs to recognized research people. My field has not been in fundamental research work. As an extension worker for 15 years, however, I learned that a major part of my job was making certain that the results of research work were made available to farm people who were not attending resident schools.

Thus extension workers have helped in the past to apply research findings at the grass roots where they would be of direct value to the farmer. Most of us will admit, I believe, that the maximum possibility for usefulness in this field, so far as marketing is concerned, has been hampered by the lack of factual materials resulting from research studies.

About 3 years ago the Extension Service in Oklahoma held a series of regional meetings with country workers and encouraged them to get more extension work in marketing into their county programs. One of the first questions of the county workers was "Where are the studies on which we are to base our Extension programs?" These workers commented further that in other fields there is factual information as background for programs while in marketing such factual information is very often missing.

The one point I wish to make is that, for the first time, money under the Marketing Act of 1946 is available and allocation has been made in such a way that by careful planning on the part of the several interested agencies a complete study of marketing problems can be developed. A co-worker and I recently attempted to assemble an extension guide on milk marketing based upon studies made by several neighboring Experiment Stations. Although the studies contained excellent material when considered independently, they were not complete enough to make possible a full analysis of any one designated period. It was difficult or impossible to tie all of the studies together into a complete story. There was no way of coming close to a complete coverage of the marketing

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field. The situation is still more serious in this respect in the field of egg and poultry marketing. We find many gaps in research and at some points some duplication.

I believe we should start our activities under the Marketing Act of 1946 by assembling, in as complete form as possible, information showing the facilities now available and the methods now being used for marketing poultry and eggs. We should have quantitative data regarding the volume of these products moved out of each of the several important geographic areas at various seasons and regarding the costs of marketing, including loss from grade deterioration. While purely descriptive research is often criticized, it does serve as a basis for affecting savings in the marketing process. Much of this type of material has been assembled for other farm products, but little is available on poultry and eggs.

I think I can illustrate my point best by talking with you a bit about various steps in egg marketing and suggesting how I think the job might be done completely by careful planning and by cooperation between numerous interested agencies.

The first step, of course, in handling eggs is moving them from farms. We have many problems in this step of the marketing process—problems of quality conservation on the farm and problems of quality conservation and efficiency in handling them through to the first large concentration point. Within the past 3 or 4 years I have had an opportunity to meet, on numerous occasions, with college people from Southern States. Frequently they have commented that there was an insufficient volume of eggs in certain parts of their State to develop an efficient marketing program. On one such occasion, I suggested that we visit the panhandle of Florida and look the situation over during the spring season. We found that in each trading center there were 5 or more buyers of eggs, none of them independently handling a sufficient quantity to support a profitable marketing program; however, the total volume in each trading center was sufficient to do so. So, apparently, we need background information at this point of the marketing system. We all know that eggs are sold by farmers through grocery stores, filling stations, and numerous other outlets. How can this step in our marketing procedure be improved? Some of the types of information which we need, it seems to me, are losses in quality under the various systems of handling the eggs, methods for reduc-

ing these losses, costs of each marketing step, and how these costs can be reduced.

The next step in studying the marketing process might be at the points where eggs are packed for carlot shipments. In the heavy production States such points are numerous; in some of the lighter production States there are only a few of them. At these packing centers eggs are usually assembled and placed in cases for shipment by rail or truck to consumption centers. This is particularly true, of course, in the surplus-producing areas of the country. In other production areas, such as the New England States, eggs move from these points in trucks going direct to wholesale houses in consumption centers. We need to know costs, losses, and deterioration in quality, and other related facts in this step of the marketing process.

The third step is handling in the wholesale centers, such as in Chicago, Milwaukee, Boston, New York, and San Francisco. The previous steps, I think, can all be studied by the Experiment Stations working within their State boundaries. As the eggs move on into the wholesale centers the job is either too large to be tackled by personnel at the Experiment Stations or the Experiment Station personnel are limited to doing such work in their State. It is here that I think we can begin to see the advantages of coordinating our program between Federal agencies and the Experiment Stations. I have met a number of times with the representatives of the North Central Experiment Stations and with the New England Research Council. Both of these groups are interested in coordinating the marketing research work of the Experiment Stations concerned with the various commodities.

In the Midwest the egg market is built, to a great degree, around Chicago. Marketing practices, fortunately, are not influenced by State lines. The Wisconsin producer of eggs is just as much affected by what goes on in Chicago as the Illinois producer, maybe even more, yet the personnel of the Wisconsin Experiment Station are probably not in a position to study conditions in the Chicago market. There are a number of Federal agencies authorized to do research work and interested in doing research work on the various commodity marketing problems. In poultry, for example, the Bureau of Agricultural Economics is interested in certain phases of the research work; the Marketing Facilities Branch of PMA is in-

interested in studying the facilities used for handling poultry products; the Farm Credit Administration (Research and Service Division) is interested in studying cooperatives; and the Poultry Branch of PMA is interested in all the various phases of poultry marketing problems. My suggestion is that we team up together in our research studies and agree which part of the over-all work each agency should do, thereby doing a complete job rather than doing the job "bits and pieces." Experiment Stations naturally should study, and would want to study, farm procurement, handling in the concentration points in production areas, and marketing conditions in what might be called secondary markets. The Federal agencies could study concurrently with Experiment Stations the marketing conditions in wholesale centers. Thus, a complete picture of the marketing process through all its steps would be provided.

There are a number of proposed projects submitted by the Experiment Stations and the several Federal agencies calling for cooperative effort. For example, the North Central Experiment Stations have submitted a project entitled "The Development and Analysis of Improved Techniques for Marketing Eggs." This project suggests that certain phases of the problem be studied by the Experiment Station and other phases by the Production and Marketing Administration and the Bureau of Agricultural Economics. It is this type of coordinated activity that I believe will prove most useful in discharging our responsibilities for research under the Research and Marketing Act of 1946.

RESEARCH IN GRAIN MARKETING*

ADLOWE L. LARSON
Oklahoma A. and M. College

ECONOMIC research and in particular grain marketing research have efficiency, reflected to society, as a major objective. This is the combination of marketing activities with other production activities to supply goods and services in the most efficient manner in line with the desires of society. Relatively new, the field of agricultural marketing research has tended to emphasize, since its beginning, such subjects as (1) methods of handling products, (2) marketing structure, (3) internal efficiency, and (4) inter-unit relationships.¹

A quick survey made since this paper was outlined indicates that there is relatively little grain marketing research now in progress. That now underway seems to be mainly a study of business operations of elevators in which margins, expenses, earnings, membership, sidelines, accounting methods and the like are analyzed. It has been limited largely to the country market level. Continued information of this type is needed but some changes and additions can profitably be made. A limited amount of research has been done further along the trade channel toward the consumer. It is my purpose to show some techniques which have been used in grain marketing research and to suggest grain marketing problems needing solution. Techniques discussed here are somewhat limited in application but might suggest experimentation by others.

Fixed-Variable Costs. Much of my research work in grain marketing has been related to *integration*. One project dealt with the operations of a cooperative elevator federation. The study was mainly of the business unit type with considerable attention given to receipts, expenses, and earnings. It seemed incomplete to discuss costs just in terms of totals, including unit costs. Some sort of an indicator of how costs would behave under varying conditions seemed desirable but difficult to accomplish. One tool which was developed is the *Fixity-Gradient*. Costs were considered to vary from com-

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¹ H. B. Price and John M. Cassels, "History of Research in Marketing and Current Trends" in *Research in Marketing of Farm Products*, John D. Black, Editor, Social Science Research Council Bulletin No. 7 (New York: Social Science Research Council, 1932), pp. 12-20.

pletely fixed at a point in time to completely variable as time approached infinity. The way they varied between these two extremes was of course dependent upon the characteristics of a particular firm. In a specific problem one might wish to know how rigid the costs of the firm are. From records and aided by estimates of management one can calculate the shares of costs which are fixed for a series of periods of time, all having the same starting point.² By connecting these points a continuous *Fixity-Gradient* curve is obtained. For some types of study just one period of time may be sufficient—as, for example, classifying as fixed all costs extending for more than a year and all others as variable. It is essential to remember that costs are fixed only with reference to a period of time and the curve shows the relative fixities for a series of periods of time.

In the published note on the *Fixity-Gradient* the following was given as the use that might be made of it:

“The major use which can be made of the *Fixity-Gradient* curve is as an aid to management in planning future operations of a firm.

1. It aids in showing the rigidity of costs in a future production period, and in suggesting a possibility of cost adjustment.

2. With a given set of conditions and costs, it makes possible approximations of costs under future operating conditions.

3. The curve shows that the fixed and variable shares of cost are a schedule, just as supply, may be represented by a schedule.

4. The gradient helps explain why a firm may or may not hesitate to make a heavy long-term fixed investment because of the uncertainty of the future—in terms of the market and related conditions.

5. It may act as a guide to a firm that wants to keep its costs within a given flexibility range—to keep its curve below a certain maximum or norm curve which may vary with business conditions.”³

Hedging Effectiveness. In case detailed records of hedging transactions are not available or their analysis might be too involved an estimate can be made of the effectiveness of hedging operations of a firm. The number of bushels effectively hedged is determined by dividing the gain in the futures account or options by the drop

² Adlowe L. Larson, “The Fixity-Gradient: A Tool for Fixed and Variable Cost Analysis,” this JOURNAL, Vol. XXVIII (August, 1946) pp. 825-834.

³ *Ibid.*, p. 834.

in inventory price per bushel from the beginning to the end of the period considered. This figure divided by the number of bushels owned for the period would give the fractional amount effectively hedged. If we want to express the fraction as an *index of hedging effectiveness* in percent it would be

$$I_{he} = \frac{(\text{gain in futures account}) \times 100}{(\text{drop in inventory price}) (\text{bushels inventory})}$$

In this case the inventory in bushels should be a weighted average. If the inventory did not change in the period the index might be expressed

$$I_{he} = \frac{\text{gain in futures account}}{\text{loss in inventory}} \times 100.$$

If no commission or handling charges are included an index of 100 would indicate complete hedging coverage. An index of less than 100 would indicate less than full coverage and one of greater than 100 greater than full coverage. Giving emphasis to the necessity of tabulating signs correctly is the fact that the index might be negative. This would mean that the futures operations actually added to instead of lessened the speculative load.

The index has some weaknesses which become evident when (1) price changes between beginning and end of the period are small, (2) the size of the inventory changes widely within the period,⁴ and (3) the period becomes so long as to cover up market changes.

Mixing Gains. There is nothing unusual about this method of approximating gains from mixing in a market or for a given firm in that market. Records of the cars in and cars out can be secured. If the numbers of each are approximately the same no major problem arises for it can be assumed that the increases in grade arose from mixing or some other process. If the numbers are appreciably different with the numbers of cars in exceeding those going out a check would need to be made to see if some of the wheat coming in was actually not being shipped out by rail—i.e., milled, stored, or shipped by truck. If some of it is not shipped the percentages by grades will probably not be affected. If, however, the difference is

⁴ This could be corrected, however, if inventory amounts are available by dates.

accounted for by not unloading incoming cars a correction may be necessary in which these cars are eliminated. To translate these gains in grade into monetary gains it will be necessary to account for shrinkage and market price differentials. This estimate may be done by multiplying the net numbers of cars gaining a grade or grades by the price differentials between the grades and totaling the products.

Single vs. Multiple Unit Elevator. A question which we have recently been asked is, "Which is the more effective arrangement of cooperative elevator operation—as single units with elevators operating at only one point, or as multiple units (centralized) with elevators at several points?" This problem we are approaching mainly with the idea of finding the method which permits the lowest marketing costs with adequate marketing services.

To start, a detailed study is being made of one multiple-unit organization to secure a thorough idea of its operations, costs, and procedures. This, it is hoped, will allow us to anticipate procedures which will be used in analyzing 2 or 3 other multiple units and perhaps 15 or 20 single cooperative elevators.

While other factors will also enter in, a major effort will be made to separate items responsible for relatively lower costs. A strong federated sales agency is considered as a given condition to all, so little attention will be directed at sales outlets of the organizations. We intend to project costs for all on a comparable basis. For example, we expect to compare costs of a multiple unit with costs that each unit making it up would have if operating separately. Likewise, a comparison of these latter costs with costs of single elevators will be made. Similarly, an attempt will be made to form multiple units out of groups of single units and compare their costs with those of the individual units. Then these synthetic multiple unit costs will be compared with those of the operating multiple units. We hope at least to secure some basis for determining whether single or multiple units are the more suitable to a particular market area.

Marginal Analysis. The marginal analysis is an aid in checking the effectiveness of business operations of grain marketing agencies. A question we are interested in is, "Are marginal cost and marginal revenue equal?" It is desirable to know, therefore, if earnings of an organization can be increased, for example, by changing the volume handled. Obviously, this type of study cannot be made by checking

changes of very small sizes. For example, in the case of grain storage, one might calculate the extra total costs of storage and extra total revenue from storage which come with the building and use of extra storage space. This is not the common point-rate concept of marginal cost but rather "differential cost" which has more application to reality. Clark states:

"When a decision has to be made involving an increase or decrease of n units of output, the difference in cost between the two policies may be considered to be the cost really incurred on account of these n units of business or any similar n units. This may be called the differential cost of a given amount of business."⁵

This type of analysis may show that marginal cost is less than marginal revenue so that an organization may secure greater earnings by increasing volume. Although this may indicate a larger desirable volume, expansion of facilities may not be justified, for the market area may be restricted to an area presently served. In our study of the cooperative grain sales agency, for example, marginal or differential revenue was greatly in excess of corresponding costs. Actual physical limitation of the market area tended to restrict expansion—however, storage capacity has recently been increased by over one-half.

Technique Needs. Perhaps one of the greatest weaknesses of workers in marketing research is their failure to develop new techniques—new methods of solving problems. Imagination is in many cases lacking. Two major suggestions might be made to the researcher: (1) continued reading in economic theory—particularly that dealing with theories of production, value and price and (2) a study of mathematics and statistics. The researcher should know at least a few aids which statistics has to offer and to whom he can go to get information needed. As his knowledge of the field of statistics expands he will be better able to design his work so that significant results can be obtained. Marketing work is almost completely devoid of statistical significance tests in spite of the fact that small samples are frequently used.

Possible Studies. There is room for a wide variety of studies in the field of grain marketing. Some old studies need to be repeated but in the main investigations could more profitably be turned in other directions reaching from the farm on through to the con-

⁵ J. M. Clark, *Studies in the Economics of Overhead Cost* (Chicago: University of Chicago Press, 1923), p. 49.

sumer. A list of projects, certainly not all-inclusive, might include the following:

Storage. Several aspects of grain storage need investigation. Where should grain storage be located—at the farm, country point, or terminal? How will the long-run transportation situation influence this? If all costs are considered which arrangement is the most economical?

Transportation. There is very little information on wheat freight rates. A general picture of the entire transportation problem together with a series of more specialized studies is needed. Men who have had extensive experience as rate men would be needed as cooperators in this field.

Standardization. There is a feeling among some people that the system of buying wheat on existing grades is antiquated. They may say that some higher grades are needed, that protein content is not accounted for, that the grade may have little relation to milling and baking qualities. This last item particularly needs investigation. It is questionable whether educational programs to grow “approved varieties” will do the job. It may be necessary to sell, and consequently identify and grade, wheat by varieties. A problem of direct concern to elevator managers is what to do with wet wheat. The present system of harvesting may have forced this problem almost permanently on to the elevators.

Market News. While the need may not be so great for wheat as for some other commodities, an investigation of the possibilities of extending market news with grading down to country points is in order. As a part of this, checks would be made of possible gains to farmers as well as of costs of the service.

Marketing Costs. Marketing cost studies will continue almost indefinitely. They could profit from better techniques which would permit somewhat reliable estimates for the future—not just an average price that occurred in some period in the past. There is also a place here for the use of motion and time studies.

Price. There is room for several studies in this field beyond those ordinarily made. It seems necessary first that studies of competitiveness of markets at different levels be made. A determination of the ways in which price structures are integrated is desirable. What factors influence price differentials and to what extent—horizontally and vertically under different competitive conditions? A special phase of this might be a study of the factors influencing the size of premiums. Of concern to farmers with a prospect of declining prices is the question, “Are margins necessarily more sticky than prices?”

Monopolistic Competition. Little stress so far has been placed on monopolistic conditions. While it may not be feasible for most research agencies to publish complete studies of this type they are nevertheless needed. This research would be directed toward the idea of reflecting to society the gains from marketing efficiency.

Policy. There seems to be need for continued study of the grain economy

with respect not only to the rest of the agricultural economy but also to the nation and the world. So many ideas might be investigated but they would likely include questions of price and production and supply controls.

Integration. There seem to be research possibilities in investigations of integration in marketing. Integration is commonly thought of as including the ownership and control of two or more steps in the trade channel—usually successive. It might just as logically include working relationships and practices of successive firms operated by different parties, who may to some extent be operating as a unit. The entire system needs study to find what arrangements bring about lowest costs and permit them to be reflected on to society—but small segments of it, as the single vs. multiple unit, become a part of the whole.

Consumer Preferences. While we may think that there is a fairly definite ceiling in the amounts of grain products which might be used by consumers our knowledge of consumer preferences for grain products is very limited. Some attention might, therefore, be given to their preferences—the grain, the packaged goods, the bakery products.

Cooperatives. As cooperatives are a major market outlet for grain products a considerable amount of marketing research of their practices will continue. The fact that data are readily available from them encourages the amount of research work among cooperatives at local and terminal points, and provides somewhat of a measure of the extent to which efficiency is reflected to society.

A summary of the possibilities of grain marketing research would indicate that much has been gained from research of the past, even though a large part of it may have appeared to be descriptive. There seems to be a dual challenge to the researcher (1) to develop projects which will indicate how society and members of it will benefit most and (2) to devise techniques which will permit more complete and more objective analyses than are now possible.

CARCASS GRADE AND WEIGHT STUDIES IN MARKETING LIVESTOCK*

GERALD ENGELMAN
University of Minnesota

THE carcass grade and weight method of selling livestock has recently evoked considerable interest among marketing researchers of the corn belt area. The successful experiences of the Canadians, who first adopted the carcass method of selling hogs on an optional basis in 1934 and made its application general in 1940, have led many agricultural economists and animal husbandmen to raise the question of whether or not such a system would net significant advantages over the present live weight method in this country. As a result, investigations are being carried on presently at a few midwestern institutions.

What are the advantages that might accrue from the adoption of such a system of selling livestock? The first of these might be called the qualitative improvement in the competitive pricing mechanism. Sale on the carcass grade basis would provide a more accurate language for price quotations. It would raise the level of producer information concerning the worth of the marketable product. It would place the producer in a stronger competitive position. The price structure over the entire market area would then be more closely interrelated and certain of the spatially erratic movements in the price surface might be minimized.

If carcass selling proves to be desirable and practical another important result might be an economy in the costs of assembling livestock up to the slaughtering plant. A more efficient pattern of resource use among livestock producers would also follow, if carcass selling leads to more equitable returns for quality production, for their productive services would then be more effectively integrated with consumer preferences.

The general problem upon which the research worker must focus his attention as he conducts his investigations in this field is to determine the desirability and feasibility of selling slaughter livestock on the carcass weight and grade basis. The pertinent questions here concerned are: (1) How accurately does the present method of marketing livestock reflect back to the producer the

* A paper presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 10, 1947.

value differences to the packer of different animals? (2) To what extent would the carcass basis of sale more accurately reflect these value differences to producers? (3) What are the economic and physical limitations to sale by this method and what are possible solutions to them?

At this point it becomes expedient to discuss the approach for cattle, calves, and lambs separately from that for hogs. Beef, veal, and lamb carcasses are sold in wholesale trade and government grade standards are used for these classes. This is not so in the case of hogs. Moreover, in purchasing cattle—and to a somewhat lesser extent, calves and lambs—buyers in making their offers do attempt to arrive at the actual value by first estimating the grade of the carcass, and accordingly its value, and then estimating what proportion of the live weight the carcass comprises, the familiar dressing percentage or yield. On the other hand, hogs tend to be bought at prices approaching uniformity within a given weight range.

From the foregoing it is evident that one approach for cattle, calves, and lambs might center on an analysis of these estimates of yield and grade made by the buyer. More precisely, this analysis concerns the departures of these estimates from the actual yield as determined from the carcass weight, and the actual grade as placed on the carcass by the government grader. These departures represent the substance of the buying errors. In their analysis, they can be subjected to the usual measures of dispersion.

Yield and grade, however, are strictly physical concepts and the measures of dispersion thus will, of course, be expressed in physical terms. The economic analysis begins when prices are assigned the various carcass grades. It then becomes possible to compare the estimated price of the animal with the actual value as determined by the weight and grade of the carcass. Through the use of dispersion analysis the probabilities of the price paid being within any given set of prescribed limits of the actual value can readily be determined. Furthermore, the price error thus determined can be broken down into its component parts, the portion of the price error due to errors in estimating yield and the portion due to errors in estimating grade. By calculating the dispersions of each separately, the relative contribution of each to the total price error can be measured.

In analyzing the distribution of errors mentioned thus far it would be fruitful to examine and compare the dispersions of differ-

ent classes and grades within the particular species. Striking differences may be found, for example, between choice steers and cutter cows.

In order to measure the extent of errors in estimating grades, it might be desirable to express the grade estimate and the actual grades in terms of one-third grade intervals. In the parlance of the market report, the three divisions of the Good grade carcasses are Top Good, Middle Good, and Low Good. More precise analyses may be made with this more refined classification.

Although the major emphasis in studies of this type is properly placed upon the carcass and its value, it must be remembered that the carcass does not constitute the entire value of the slaughter animal. Another broad area of investigation is an analysis of the by-products from the slaughtering process. Of these the most important are the hide in cattle and calves and the pelt in lambs. The composite value of these and other by-products generally exceeds the cost of slaughtering and thus provides an incremental value above that of the carcass alone. Especially is this true in the case of sheep and lambs. Since the value contribution of these by-products, particularly the internal fats and edible organs, might vary considerably by grade, weight and sex of the animal, there would be considerable merit, therefore, in determining the approximate yields of the various by-products in order that differential credits by grade, and possibly by sex, can be calculated. The pelts of sheep and lambs present a special problem. Because of the great variation in length, quality, and weight of fleece as these animals are marketed, their value contribution to the total value of the animal is subject to rather extreme variability.

The possibility of selling hogs by the carcass method has awakened considerably more interest in recent years than has been the case with respect to cattle, calves, and lambs. The investigational approach, however, appears to be less straightforward. It is handicapped at once because acceptable standards for grading hog carcasses do not exist. Since hog carcasses are normally disassembled within the packing plant and merchandised in the form of a number of component wholesale cuts and trimmings, carcass standards have not been developed. This single fact marks out the initial and perhaps the most important area of research—that of establishing standards which classify hog carcasses according to

certain physical attributes which in turn have some bearing on economic value.

The various wholesale cuts and trimmings differ considerably in value. The hams, loins, picnics, Boston butts and bellies are all relatively high value cuts. Hog carcasses differ in value according to the proportions of these high value cuts they yield on the cutting floor. The heart of the standardization problem, therefore, is to determine whether or not some quantitative, physical measures of the carcass can be found that appear to have a functional relationship with the proportions of these high value cuts in the carcass and which also can be used to describe the carcass objectively.

Certain measures have been suggested as having enough merit for at least exploratory analyses. These include average backfat thickness, length of body, length of ham, thickness through the shoulders, thickness through the hams, and belly pocket thickness. Measures other than these may well be worth investigating. The composition of the carcass can only be determined by the cut-out test. The conventional regression analysis is quite satisfactory for arriving at the primary functional relationships. Multiple correlation might provide a useful tool in analyzing the relative merit of the different measures. The several simple regression and correlation coefficients can be compared with their respective partials to ascertain the independent relation of each to the dependent variable. If the simultaneous use of several measures within the grade standard is contemplated, this latter step will be of considerable importance.

The sampling procedures applicable to hog carcass studies differ in emphasis from those usually followed. The primary concern is not in sampling carcasses representative of different seasons of the year or of different producing areas. It is rather in sampling adequately, within prescribed limits, the total range of physical variation regardless of the numbers in which these various physical categories come to market.

To analyze butcher hogs weighing from 180 to 300 pounds alive one might select carcasses weighing from 120 to 220 pounds. These carcasses could be classified by weight into 10 groups, each having a 10 pound range, and the respective regressions calculated within each of these fairly narrow weight ranges. The importance of this weight classification should be apparent when it is remembered

that the objective is to arrive at functional relationships of physical measures expressed in absolute terms with a dependent variable which consists of a proportional concept. A given change in back-fat thickness, for example, can be expected to have considerably more influence on the proportion of high value cuts on 120 pound carcasses than on 200 pound carcasses. And measuring this change in relationship is another part of the problem.

Sampling by weight alone encounters no particular obstacle. It does not, however, suffice for our purposes. It is also essential that the separate regression analyses be characterized by a homoscedastic pattern of individual observations. One method of at least partially achieving this objective is to classify the carcasses by degree of finish, by eye alone, into six different finish categories varying from the excessively overfat to the extremely under-finished. Within each weight group an attempt should be made to obtain a wide range and uniform distribution of degree of finish. This may prove to be a rather tedious assignment. To obtain adequate numbers of light weight overfinished carcasses might be quite difficult, particularly in certain seasons. To find the under-finished carcasses among the heavy weights may be virtually impossible. Nevertheless, within most of the individual weights it should be possible to obtain a fairly uniform scatter of observations about the several regression lines.

The numbers required for an adequate sample in making studies of this character depend largely upon the range in variation of finish within the weight groups. A two way classification with 10 weight groups along one axis, 6 categories of finish along the other, and the 60 resultant cells within, will provide the suggested sampling model. If each of the cells are equally well filled it would appear that 60 carcasses within each weight group would be sufficient for the regression analyses. Larger numbers will be required if this qualitative criterion is not satisfied.

The analytical procedures here proposed are frankly offered only as a suggested approach. The techniques of analysis discussed here are not new but rather have been included in the curricula of graduate students in agricultural economics for more than a generation and are a part of the equipment of most research workers. As further investigations are carried on in this field, a more highly sophisticated and erudite methodology surely will be developed.

THE FEDERALLY SPONSORED CREDIT SERVICES TO AMERICAN AGRICULTURE

SUGGESTIONS FOR IMPROVEMENT AND COORDINATION

A REPORT BY A RESEARCH COMMITTEE

THE organization and policies of the various federally sponsored agencies which supply credit to agriculture have been under study during the past three years. Congressional groups and farm organizations have been giving these matters active consideration, and also several committees within the Farm Credit Administration, among them a committee of land bank presidents, one of General Agents, and one of administrators in the central office. Since the conclusions of these groups reflect a wide range of viewpoints, suggestion was made that an independent study be undertaken by a group of professional agricultural economists familiar with agricultural credit problems, but not connected with any credit agency. To facilitate such a study the Governor of the Farm Credit Administration, in the fall of 1944, invited five agricultural economists from various parts of the country to serve as an independent research committee to study possibilities for further improvement and strengthening of the system of federally sponsored credit services to American agriculture. This committee consisted of:

Murray R. Benedict, University of California, Chairman

George H. Aull, Clemson College

Karl Brandt, Stanford University

Glenn W. Hedlund, Cornell University

William G. Murray, Iowa State College

After a year of frequent meetings and intensive study, the committee completed a joint report representing substantial agreement on the analyses and recommendations presented. The five following papers are segments of a condensed version of this joint report severed merely for convenience in presentation, but indicating neither exclusive nor major authorship of the ideas contained in those parts, nor a division of labor in treating the subject. All five members of the committee have contributed to all parts of the report, and the five papers are the result of their joint effort. While the Farm Credit Administration has facilitated the committee's work, it is in no respect responsible for the conclusions and proposals presented. These are solely the responsibility of the members of the committee.

THE FEDERALLY SPONSORED CREDIT SERVICES TO
AMERICAN AGRICULTURE—SUGGESTIONS FOR
IMPROVEMENT AND COORDINATION

A.—CONDITIONS AND PROBLEMS THE SYSTEM SHOULD BE
DESIGNED TO MEET¹

I. *The present status of the federally sponsored credit agencies.*

Federally sponsored credit for American agriculture had its beginning in the Federal Farm Loan System of 1916, with 12 federal land banks under a Federal Farm Loan Board supplying long-term farm mortgage loans. These land banks were created to supply cheaper credit, improve the paying-off methods, and to make credit more equally available in different parts of the country.

Over the years, the original framework has been enlarged by additions to the cooperative credit system, by special appropriations to meet distress situations, and by establishing the Farm Security Administration (recently renamed the Farmers' Home Administration) for the purpose of providing more adequately for marginal borrowers not eligible for loans from the cooperative credit agencies.

The cooperative credit system became more comprehensive by the creation of the Intermediate Credit Banks (1923), the Banks for Cooperatives, the Production Credit Corporations and the Farm Credit Administration (1933).

The provision for loans out of direct appropriations began with the feed and seed loan program initiated by presidential order in 1918. It was greatly extended by later measures such as the act establishing the Agricultural Marketing Act Revolving Fund in 1929, the creation of the regional agricultural credit corporations in 1932, the provisions of aid through the Resettlement Administration after 1933, and the creation of the Farm Security Administration in 1937.

The federally sponsored agricultural credit system now has two main divisions:

(1). *The cooperative loan system*, chiefly centered in the Farm Credit Administration, consists of the 12 federal land banks and their network of national farm loan associations; the 12 interme-

¹ Presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947, by Karl Brandt.

diate credit banks; the 13 banks for cooperatives; and the 12 production credit corporations with their system of production credit associations. Closely associated with the land bank system is the federal Farm Mortgage Corporation with its program of commissioner loans. This, while not a cooperative loan program, is more closely related administratively and in policy to the cooperative loan system than to the direct loan system. The cooperative loan agencies were designed to be eventually farmer-owned, principally farmer-controlled, and in the main self-supporting.

(2). The *direct loan* provisions include the disaster loans, made by the Reconstruction Finance Corporation, and the crop and feed loans and regional Agricultural Credit Corporation loans, now in the Farm Credit Administration; and the rehabilitation loan program, tenant purchase loans, and various others administered by the Farmers' Home Administration. The direct loan program, particularly that part of it administered by the Farmers' Home Administration, is not merely an addition to the earlier system, but represents a new approach to farm credit and a different attitude toward the improvement of the earnings of low-income farmers.

Often federal credit aids to farmers are too numerous to mention. They include federal reclamation developments, loans for rural electrification, tenant purchase loans, water-facility loans, loans by the Commodity Credit Corporation for support of commodity prices or to change the time of marketing, and many others.

It is evident that a system which has grown up a piece at a time in this way would be different in structure and coordination from what it would have been had it been created all at one time as a single coordinated and comprehensive system. While minor adjustments in organization and procedure have been made frequently and a major reorganization was carried through in 1933, *the system as a whole has become unnecessarily complicated and expensive to administer. Coordination is inadequate between direct loan programs and the cooperative credit system.*

II.—*The need for greater strength and better organization.*

A review of the entire system of government-sponsored credit for agriculture with a view to increasing its effectiveness, economy, and convenience seems timely and appropriate for the following reasons:

1. The necessary adjustment in agriculture during the coming years calls for a high degree of flexibility in organization and policy.
2. During the early thirties the system passed through the worst depression American agriculture has known. That period demonstrated the general soundness of the existing credit system for American agriculture, but it revealed weaknesses which should be corrected before another period of stress. Moreover, the experience of almost one generation in the cooperative part of the system should be utilized for improving the effectiveness of all agencies even for periods of more normal loan conditions.
3. We are now in the most serious inflation since the organized agricultural credit system became a going concern in the United States. Temporarily this presents problems of a type different from those arising in periods of depression, but this condition will inevitably lead to more difficult adjustments during the later price deflation.
4. Some of the agencies which originally were needed in getting the local units established and functioning may be dispensable now where a comprehensive network of local units has matured.
5. There is an increased interest in new types of loans designed to improve the economic and social condition of marginal farmers, and in many other types such as loans for veterans, loans to improve rural housing, and loans to aid forestry development. It is important that the probable effects of such loans upon the existing cooperative credit agencies, the borrowers, and the public be considered, and that they be brought into a logical and well-coordinated relationship to the other federally sponsored credit agencies and the private credit agencies serving agriculture.
6. Owing to the extraordinary liquidity of the investment capital market, and under the impact of a low interest rate policy of the Federal Government, the government-sponsored credit agencies are meeting increasingly severe competition. Costs must be reduced to the lowest level consistent with effective operation if they are to maintain a strong and sound position. It is essential that the federally sponsored farm credit agencies be maintained during periods of prosperity if they are to be

in a position to meet the needs of agriculture in times of adversity. This calls for realistic consideration of their relation to the private credit agencies, and a clarification of policy as to whether they are to be regarded as standby agencies to serve mainly in times of stress or are expected to maintain a substantial portion of the loan business in good times as well as bad.

7. There is a need to clarify specific functions and responsibilities. Many parts of the system have grown up as a result of emergencies. Comparatively little has been done toward shaking down these emergency provisions into a well-integrated permanent system designed to meet the wide variety of conditions resulting from alternating periods of prosperity and depression.

III.—*Kinds of situations the system should be designed to meet.*

The problem of supplying credit for agriculture through government-sponsored agencies has changed over the years, and is likely to be modified still further in the decade or two following this war. The credit structure should be planned with a view to making the largest possible contribution to the stability and well-being of agriculture. Specific situations which the system should be prepared to meet may be listed as follows:

During an initial period strong economic pressure for still higher land prices will be felt and cause political pressure for larger loans. Assuming a land-loan policy for the government-sponsored agencies which is directed toward stabilizing land prices and loan levels, this will mean for them a smaller proportion of the total volume of agricultural loans made and a shrinking volume of business.

During a later period farm incomes may be substantially lower than at present. Farmers will then have difficulty in meeting loan commitments, especially where loans have been made on high percentages of value or on high appraisals. During this period widespread demands for extensions of time on loans and for postponement of interest payments may be expected, as well as demands for the refinancing or writing down of loans to correspond to reduced abilities of borrowers to meet their obligations.

During the first period, but probably reaching into the second, intense pressures will operate toward expansion of given types of loans such as tenant purchase loans, rehabilitation loans, loans to veterans, and loans for refinancing. Many of these will involve financing that may not be regarded as sound in terms of normal standards of credit extension, but which may nevertheless need to be provided in the interest of broader social objectives.

Considerable effort will be made to use credit for stimulating changes such as improved rural housing, better equipped farms, consolidation of small units, creation of family-type farms, holding of stocks of farm commodities, and creating new cooperative associations.

There may be intermittent periods with widespread drought or other kinds of adverse weather causing regional distress and jeopardizing the credit standing of district and local credit agencies serving these areas.

The farm credit organization should be prepared to meet these varied conditions. It should have such well-considered policies with respect to difficult types of loans that the organization as a whole will remain strong and sound.

IV. Implications of a possible general economic depression.

The assumptions made thus far do not contemplate a large general economic depression like the one that hit the world in 1929-32 and the following years, but rather a period of agricultural adjustment accompanied by high employment in industry. Following the reconversion period a brisk reconstruction boom in industry and trade may develop and hold for several years. Such a prospect would lessen the threat of an unmanageable agricultural situation.

For the sake of safety, however, it should also be anticipated that such a boom may suddenly collapse and that after the boom a real general depression might strike at industry and commerce. This threat may become real if, instead of a depoisoned atmosphere in international relations, already existing new tensions between great powers should become more vicious, and for various reasons the volume of foreign trade should fall sharply.

If industrial employment should shrink substantially after a few years, agriculture will again be facing cataclysmic conditions which cannot be cured by agricultural credit policies or even by agricultural policies in general. Only constructive national and international policies can give promise of removing the causes of the worst afflictions.

Yet, with the aid of well coordinated economic policies, the farm credit structure must be adapted to cope with whatever emergencies may arise, and must be able to weather the storm in the service of American agriculture.

In a real depression the farm-credit structure is the most exposed part of the entire agricultural system, because it is based in large part upon farm mortgages which, by definition and law, represent a rigid structure of long-term obligations. When the income on land

falls and consequently land values begin to decline, the whole edifice of debts eventually begins to crack. The falling income prevents certain debtors from paying interest when due, and declining land values shrink the farmers' equities in their land, often to the point where the first mortgage exceeds the value.

This cracking, and the losses it involves, is a process of "adjustment" but an unnecessarily costly one if left only to the automatism of laws of bankruptcy and execution against debtors. The psychological effects of such a crisis, with wholesale use of bankruptcy procedures, are destructive.

The agricultural credit system should be capable of cushioning the shock of such drastic changes in land values and incomes rather than be an aggravating element. In the recommended plan for reorganization of the agricultural credit system that follows, special consideration has been given to this requirement.

V. *Policy problems.*

a. *General policy relating to the system as a whole.* There is need for clearer definition of the basic purposes of a combined and comprehensive credit system such as that proposed in this report. Such clarification of objectives can do much toward avoiding controversy and confusion and, in cases of fundamental differences of viewpoint, can bring them out clearly for legislative decision. In order to clarify the point of view underlying the succeeding sections, the following brief discussion of general principles is presented.

What is a federally sponsored agricultural credit system expected to accomplish? Should it confine its activity strictly to providing credit to all farmers who, under the rules of banking, are good risks, and thus, so to speak, service agriculture with outside capital as a neutral agent without interfering or taking sides in the competition among different producers? This would be the liberal concept of a free competitive economy. Its clear adoption would mean that loans would be made exclusively on objective economic considerations.

Or, is such a system designed to serve secondarily also for bringing about certain social or economic reforms, such as the reduction of farm tenancy, the promotion of family-sized farms, or the giving of aid to "underprivileged" people?

Naturally, a pure service policy of supplying credit on sound business principles as a disinterested party would have some joint social, political, and economic effects. Yet it is obvious that a non-

intervention and strict business course would be much less exposed to political controversy and much freer in pursuing a highly efficient and clean business performance without bias.

Both of the philosophies mentioned must be considered, however, in any discussion of a proposal to combine under one roof and under one common supervision all federally sponsored credit organizations dealing with agriculture. If the agricultural credit system is to operate wholly according to sound business principles, it cannot, of course, become an instrument for social reforms. On the other hand there is no valid reason why an over-all agricultural credit agency should not combine the functions of channeling funds from investors to farmers who are good risks with such other lending activities as the Congress may from time to time direct. It is important, however, that definite aims and policies be developed respecting each of these functions and that the agencies of a administration be clearly separate within the framework of the unified agricultural credit system.

It has been the established policy of the Congress for two decades or more to provide both a "passive" credit service and an active implementation of certain agricultural policies which give aid to economically weaker farmers and mitigate the severity of the competitive struggle. There appears to be social and economic justification for both types of loans. It is necessary however, that plans with respect to them be related to certain guiding principles if decisions on structural and functional problems are to be consistent and constructive. The following are suggested as being of particular importance:

1. The basic aim of the publicly sponsored agricultural credit system, both in its cooperative and direct loan divisions and through its other service activities, should be to foster stability of tenure, pride in ownership, soil conservation, and constructive farming; to raise the standards of rural living through low-cost credit on terms convenient and suitable to the borrower wherever there is reasonable prospect that it will be used constructively, and can be repaid.

2. For each branch of the system the intent and purpose of the Congress should clearly be set forth in the Act establishing it.

3. The credit institutions, whether cooperative or public, should not be considered as ends in themselves, but should exist purely for the purpose of rendering service to agriculture within the framework of national policy. This principle would preclude the creation or maintenance of such agencies where the same or a better service is satisfactorily rendered by private agencies.

4. The credit organization should operate according to good business principles and should reduce costs to that minimum which is consistent with maintenance of the service desired. Whatever the type of loan, there should be provision for prompt check-up on delinquencies, regular and adequate audits, and appropriate supervision. The reports of the agency should provide a clear and informative record of their loaning activities and the results of them.

5. Direct government credit should be provided only where reasonable service cannot be provided by the cooperative system or by private agencies. Where government credit is provided, it should be for clearly defined purposes and under a clearly formulated policy established by the Congress.

6. The direct loan programs should be so planned as to encourage graduation into the regular cooperative or private loan systems as soon as the borrower can qualify.

7. The various types of direct loans should be combined in such a way that the prospective borrower can gain access to funds he is entitled to with a minimum of shopping around, and in a way that will avoid unnecessary duplication of staff and possibilities of undesirable competition between agencies.

8. Both the appraisal policy and the percentage of value loaned should be established with a view to furthering the long-term welfare of the individual borrower and of American agriculture. To this end bases of appraisal should not follow closely either booms or depressions in agriculture, but should be related to the expected long-term earning ability of the land. Loans of very high percentages of value should be made only in situations where they are not likely to lead to loss of the farm in a period of adversity or to a long period of low living standards for the farm family in its efforts to carry an excessive load of debt. Where the equity is too small to permit of safe purchase, the aim should be to provide working capital for effective operation as a tenant, and efforts looking to increased stability of tenure should be in the direction of improving leasing arrangements.

9. Since it is created for service to the public, the agricultural credit organization should not assume the attitude of a ruthless business corporation which exploits its position to the fullest, disregarding the harm done to customers or the general public. It should be bound to act upon sound business principles, but also to behave as a trustee for its clients and thus try to avoid losses and hardships for them in so far as the safety and health of the business as such permit.

10. The loan procedures and policies should be so designed as to permit and facilitate cooperation by farmers in the more general agricultural programs of the government, but should not be conditioned on such participation nor used to coerce growers into such participation.

11. It should be made clear that the Government will not come to the rescue of creditors who have ignored public warnings against excessive commitments by lenders and borrowers, and have by their reckless lending caused or contributed to the insolvency of their clients.

b. *The place of cooperative loans.* The cooperative loan system,

which has long been the main framework of the government-sponsored farm credit organization, was designed to meet specific problems, and to operate on a regular banking basis, but with co-operative ownership instead of the more customary forms of private ownership. Its purposes are as follows:

1. To bring together the small and diverse collateral resources of individual farms so that the combined resources will constitute a suitable basis for negotiable securities salable in a wider money market, thus permitting the tapping of credit resources not available to the individual farmer.
2. To provide loans on terms suited to the probable timing of repayments.
3. To create an efficient, orderly channel between creditor and debtor so that the individual creditor does not need to seek out the individual borrower, or vice versa.
4. To keep for farmer borrowers such profits as may arise over and above the necessary expenses of providing credit.
5. To establish a credit system owned in the main by the borrowers and oriented to their interests rather than to those of the creditor.

In accordance with these purposes, the cooperative credit system is designed for handling loans of a "sound" and relatively conservative type. Under the laws governing the system, its loans have been kept on a relatively conservative percentage of the value of the security. This has contributed not only to safety, but to the confidence of security buyers, which is necessary if money is to be secured at low rates of interest. Loan percentages have been kept low for the same reason. The cooperative form of organization has been used so that the borrowers may not only avoid unduly high costs for credit, but also that they may have enough voice in the management of the system to protect their interests as borrowers with constructive action.

c. Principles and policies for cooperative credit.

1. The principal part of the agricultural credit system should be cooperative in structure and, in the main, self-supporting. Decentralization of responsibility, and borrower participation, should be provided to the fullest extent compatible with the well-being of the system and with adequate protection of the

government-owned funds in it. It should provide loans as efficiently as possible and on as liberal terms as can be given with due regard to the safety of the system, and should operate at as low a cost as is consistent with good service. It should not be expected to make loans on which the risks are high or types of loans that may cause misgiving to purchasers of its securities. This is not to say that there should be no loans of such types, but if made, such loans should be provided by other agencies from funds obtained in a different way.

2. The cooperative loan systems should nevertheless exercise leadership in the credit field. It should seek to improve the quality of appraisals generally and to provide new and better services of various kinds.
3. It should provide keen but fair competition to the private credit agencies, but should not aim to monopolize the field. Both the government-sponsored and private agencies are likely to be more efficient if subjected to the stimulus of competition with each other. The government-sponsored agencies should, however, recognize that they have a responsibility for stabilizing credit conditions in emergencies. To the extent that this involves additional risks or operating costs not incurred by the private agencies, the Government should be prepared to provide special aid. In keeping with this view the government-sponsored agencies should serve as a balancing factor between periods of prosperity and depressions, and should seek to counteract actions by the private agencies that are adverse to the public interest.
4. Interest rates should be based upon the cost of funds in the money market plus a margin adequate to maintain the lending agencies when operating on an efficient basis. Where it is the wish of the Congress that loans be made to high-risk borrowers, such subsidies as are provided should be either in the form of grants-in-aid or meeting losses on delinquent loans, rather than in the form of an uneconomically low interest rate. To provide funds at a total cost which is below a true competitive rate of interest is likely to be destructive both to the cooperative and private credit systems, and will lead to an increasing drain on the public treasury. Basically, the aim should be to provide agriculture with access to the money markets on a basis equal to that of other types of business,

- but with recognition of the special conditions of agriculture.²
5. Since the Congress has indicated its preference for a uniform basic interest rate over the nation, the spreads allowed the various agencies should be made wide enough so that the agencies in the higher-risk areas can maintain their solvency while those in lower-risk areas can reflect their lower costs in larger patronage dividends. To require an unduly low rate for a high-risk area or type of loan merely operates to bar the borrower from the given source of funds and is likely to force him to use very high-cost private funds, since it eliminates the modifying competitive influence of the government-sponsored agency, thus defeating the very purpose for which it was established.
 6. More adequate provision should be made for sharing losses between the local, district, and national agencies with a view to spreading uncontrollable risks more widely, assuring continued solvency and effectiveness of the various units, and relating losses to responsibilities undertaken in making loans.
 7. The cooperative loan system should provide the public with a safe and efficient mechanism for investing loan funds in agriculture.
 8. Government guarantees should be used as sparingly as possible since these are likely to lead to less careful administration of the system, and may involve the federal treasury in large and unpredictable losses. The disastrous experiences of some of the state loan systems give evidence of these dangers.
 9. The policy recently adopted whereby the terms of repayment are made more flexible and larger payments are permitted in good years and smaller ones in bad years should be strengthened, since it makes the system more depression-proof and provides a safeguard to the borrower in case he runs into years when regular payments cannot be made. The credit agencies might well be given authority to offer inducements for larger payments in good times, possibly in the form of a slightly reduced interest rate over the period in which the borrower is ahead of his repayment schedule.
 - d. *The place of direct loans.* Direct federal loans are distinguished

² The relation of governmental to private lending is discussed more fully in an article "The Relation of Public to Private Lending Agencies (in Agriculture) and Recent Trends in Their Development," by M. R. Benedict, this JOURNAL, February 1945, pp. 88-103.

from cooperative loans by the fact that the funds are provided either through direct appropriations or from securities backed by the Government's credit rather than by borrower's collateral. On these loans the Government assumes full responsibility for granting the loans, collecting the payments, and underwriting the losses. The object of direct lending is to make credit available to those who cannot qualify through the usual channels and whose status can presumably be improved by means of credit. Direct loans thus are designed to serve a constructive social purpose. The practice of making direct government loans for agricultural purposes began about twenty-five years ago and apparently has become firmly established as a part of the system of finance.

To administer its policy of supplementing private and cooperative credit with direct government funds, the Congress has seen fit to create a number of different agencies and to specify various policies. In general, a new organization has been set up in response to each new demand for direct government lending. Seldom is one of these organizations discontinued when a new one is set up. At the present time, the Federal Government is making direct loans to farmers through at least seven separate agencies including the Farmers' Home Administration, the Regional Agricultural Credit Corporation, the Rural Electrification Administration, the Federal Farm Mortgage Corporation, the Commodity Credit Corporation, the Disaster Loan Corporation, and the Emergency Crop and Feed Loan Division of the Farm Credit Administration. While there is a certain amount of specialization in the type of loan made by each of these agencies, and some of them have been coordinated under the supervision of a single agency, there is obvious need for more unification of direct lending activities.

It is important to remember that while direct and cooperative loans are made under different circumstances, their effects on the general economy are quite similar. Direct loans, however, since they involve the use of money from the public treasury, raise questions such as that of using government money to increase the number of farmers when there is a surplus of agricultural production; of subsidizing inefficient producers; of encouraging widespread distribution of government credit even when private lenders are looking for outlets for their funds; of charging less for a high-risk (government) loan than must be charged for a private or cooperative loan; of lending 100 percent on inflated land values; of duplication

of lending agencies. All of these suggest the need for a clear understanding of the principles which govern the administration of direct government loans, and a good balance between direct loans and those made by cooperative and private lending agencies.

e. *Principles and policies for direct loans.* If the system is to function effectively in conjunction with the private credit facilities available to agriculture, certain principles of direct lending should be agreed upon and policies established which will make them effective. The following are suggested as appropriate guiding principles in the provision of loans of this type:

1. Direct loans should be oriented primarily to improving the operation of existing farms and to aiding capable farmers who may need financing but are not eligible for private loans or loans through the cooperative system. The aim should be to get the direct loaning activities into an appropriate relationship to the cooperative and private sources of credit and established as a permanent system rather than a series of stopgap arrangements set up to meet specific emergencies.

Many small farms are underfinanced and poorly managed. Some of these can be improved markedly by the provision of credit for specific purposes, coupled with the regular educational activities of the extension service. For a good many, however, the purpose of the loan will not be accomplished unless the loan is accompanied by rather direct and positive supervision, used largely as a means of educating the farmer-borrowers.

The basic policy should be to seek to get these farmers on their feet and sufficiently developed so that they can finance through the regular agencies and will look to the regular educational services for help on their problems. This means in part that there should be positive encouragement for them to take more part in the regular community activities. They should be got out of the special aid class as soon as possible, not only for the purpose of minimizing governmental expenditures, but also for the purpose of improving their own self-respect and self-confidence.

The program with respect to a given farmer should be undertaken only if there is reasonable prospect of success in making him an independent, self-respecting farmer who will not need special aid; only if he has expressed a real willingness to undertake an appropriate program, and only if he shows a real interest in raising his level of living through increased production for home use. It is recognized that loans of this kind require more supervision than loans made on a regular banking basis, and are expensive to administer, partly because they are in most cases smaller than the others. The necessary provision of supervision and education may well be made as a subsidy from the Government. The loans themselves, however, should be made in the expectation that they will be repaid

and at rates of interest that will not be ruinously competitive with the cooperative or private agencies.

2. When a direct loan is made as a supplement to the cooperative or private loan, encouragement should be given for the borrower to repay the direct loan as soon as possible and to get onto a more normal borrowing basis, provided, of course, that in the meantime the security back of the other loans is not allowed to deteriorate.
3. Whenever a direct loan or a part of it can be refinanced at reasonable rates by funds obtainable from other sources this should be done.
4. The interest rate on a direct loan should be somewhat higher than that on a cooperative loan, perhaps one percent higher. Ordinarily direct loans are made in small amounts, more risk is involved, and they cost more to make. The difference of one per cent in the rate would add very little to the expenses of the borrower, but would be sufficient to encourage the shift to cooperative or private credit as soon as the borrower is eligible.
5. There should be definite criteria or formulae which can be applied to determine eligibility of applicants for direct loans. A sufficient number of indices are now available to make possible fairly simple and readily understood "yardsticks," the use of which would eliminate much criticism and abuse in the administration of government loans. A record of borrower progress and credit history should be kept.³
6. There should be some reasonable flexible limit upon the number of times a borrower will be eligible for a direct loan.

³ For rehabilitation loans it is suggested that eligibility requirements include five years of experience as an operating farmer, inability to get loans elsewhere, and approval by the local advisory committee. The principal function of these loans should be that implied by the name—that is, to reestablish farmers of proven ability, who, because of some circumstances beyond their control, have lost out.

There should be another type of loan similar in nature but directed to a different group of farmers. This would be for aiding new farmers in getting established. Here the usual requirement might be that the applicant be under forty years of age, have had five years of farm experience, and have the approval of the local advisory committee. However, such an age qualification should not be unduly rigid. Exceptional situations may warrant giving such aid to some farm workers who are older.

The main purpose of these loans would be to enable promising young farmers to get started as entrepreneurs at an earlier time than otherwise could be done. In many areas young farmers of this type are able to get financing from landowners who are interested in taking them on as partners or otherwise. There are, however, considerable areas where this may not be possible.

Rehabilitation loans, for example, should "rehabilitate" and emergency loans should relieve the emergency, but there can be little justification for disguising perpetual relief by calling it a loan. It must be expected that loans of this kind will show some losses. These, however, should be more than offset by the interest earned, and the funds should not only be maintained, but probably should make some return to the government. There should be more definite provision for closing up and getting off the books loans that have definitely gone bad.

7. Care should be exercised to avoid use of government credit either, to establish or maintain farmers on uneconomic units or in areas that are submarginal for the type of farming the borrower expects to carry on, or under circumstances which offer no prospect for economic progress.
8. Government funds for direct lending should be allocated annually by the Congress on the basis of experience and prospective demand in a way similar to that used in providing emergency crop and feed loans. Separate allocations should be made for purely loan purposes and for the necessary supervision. The welfare aspects of direct lending including all kinds of grants, special services, etc., should be separately reported, and not charged as a part of the cost of credit.
9. Grants-in-aid, if made, should be separate from the loan, and probably through a different agency. They should not be used in such a way as to make unclear what is happening in the loan program.
10. Government funds should be made available for direct lending to cooperative associations for facility purposes when in the opinion of the District Board the facilities seem to be in the public interest, and when private or cooperative sources are reluctant to advance the necessary funds. As in the case of other direct government loans, the financial arrangements should be transferred to a cooperative or private lending agency as soon as conditions warrant.
11. Government loans amounting to substantially 100 per cent of the cost of a farm do not constitute a sound method of promoting farm ownership even under normal conditions. With land values at inflated levels, the probability of difficulty is especially great. As a general policy it is believed that

a desirable pattern of land tenure can best be promoted under conditions which require a prospective borrower to provide cash equivalent for at least 15 percent equity in the normal value of the farm he wishes to buy before being eligible for a government loan.⁴ Until this is done, it seems likely that he would be better off as a tenant. Government loans should not be used to set people up in farming who lack the requisite experience, and who are unable to provide some part of the purchase price.⁵

12. Direct loans are justifiable in cases of physical disaster and to prevent economic collapse. The amounts advanced, however, should be in addition to credit obtainable from other sources under reasonable terms, and should carry a somewhat higher rate of interest.
13. In general, direct loans should be provided only on approval of a local committee which includes well-informed farmers of high standing in the community.
14. Areas in which disaster or drouth loans are found necessary at frequent intervals should be brought under study for more basic measures of correction. The mere extension of credit is not a solution for problems of this kind.
15. Direct loans of the production type should come under closer supervision than ordinary private or cooperative loans. This will not only increase the likelihood of rehabilitating the farmer but will strengthen his desire to get into a more normal credit status at the earliest practical time.
16. "Commissioner-type" loans should be looked upon primarily as a means of refinancing in periods like the 1930's when the value of the security has fallen below what it was at the time the original mortgage was given. Loans of this kind should continue to be limited to reasonable percentages of normal

⁴ Dissenting opinion by W. G. Murray: "The policy of making tenant-purchase loans up to 100 per cent of the normal value of the property should be permitted provided the borrowers have free of debt the necessary livestock, equipment, and operating capital to operate the farm purchased. In addition, such 100 per cent loans should be permitted only if these loans are restricted as in the past to a select group of the more capable tenants. It is assumed that tenant-purchase borrowers would operate under close supervision from the lending agency."

⁵ It is suggested that tenant-purchase loans be limited to farmers under 40 who have had five years' successful experience as tenants and are approved by the local advisory committee. This program presumably would apply to tenant farmers of better than average ability and usually in the most active period of life. While 85 percent of normal value is suggested as an upper limit, a larger equity is desirable.

value in order that they not be a means of bailing out creditors who have engaged in reckless financing despite repeated warnings of the dangers involved. There is a place, however, for this type of loan in new purchases, but borrowers should be carefully selected. Otherwise they may merely be involved in an operation that will eventually mean the wiping out of their equities. Funds of this type should also be used in making first mortgage loans where the property is not eligible for a loan from the cooperative loan system because the operator is a part-time farmer or there is some other condition which prevents his getting a regular land bank loan.

It seems evident that the whole direct loan program could be simplified and reduced to a smaller number of agencies. The rehabilitation loan procedure should eventually take care of most of the needs for special types of production loans. The crop and feed loans, disaster loans, rehabilitation loans, and others of similar character might be combined for handling through one agency with a single field staff by transfer of the assets and liabilities of these agencies to the new one. The aim should be to meet quickly and adequately given types of need, and there should not be any pressure to put out specified amounts of money in each area. The procedure would be to establish well recognized criteria as to the conditions under which such loans would be available, and to develop a permanent and adequate mechanism that could meet all legitimate needs.

For example, with respect to disaster loans, it might be stated that when drought, floods, frost, wind, or insect damage reduces the average yield of main crops of any county or other unit to some specified fraction, say fifty per cent of the ten-year average, farmers in that unit would automatically become eligible for such loans. Thus, help could be provided quickly and automatically instead of by special Congressional action in each case.⁶

f. *The spreading of risks.*⁷—Creditors have to cope with two main

⁶ There is need for some analysis of the conditions which have in the past led to providing loans of this kind, and whatever conclusion is reached should be written into the law. It may be a drop to fifty percent of usual yield or to some other percentage. The Governor should, however, be given some discretion in designating the classes of loans and boundaries of eligible areas or classes of farmers to be served.

⁷ The subject of risks and risk bearing is an exceedingly broad one and full exploration of it in relation to credit operations will require extensive studies probably better suited for the research division of the Farm Credit Administration than for this committee. Facts may be brought out in such studies that may call for changes in the general and rough analysis presented here.

types of risk: (a) those resulting from incompetence, dishonesty, or other personal circumstances of the borrower, and (b) those due to causes beyond the borrower's control. The general thought underlying the Federal Land Bank system took account principally of the risks arising from personal factors rather than of those caused by adverse economic situations. The method of risk underwriting by the local national farm loan associations with the device of capital stock and double indemnity proved ill suited to bear the risk of a depression and severe recession of land values. Any accumulation of losses not only exhausted the associations' reserves, but ran them into heavy debt and made them defunct for further lending. With the real risk lying on the district banks, the real responsibility for making loans shifted to them.

The committee suggests, therefore, that control of the local associations and of the district banks be vested in memberships of nominal cost, and that the risk of losses be covered by adequate insurance funds at the local, district, and national level, and not by capital reserves. It is assumed that a one-half of one percent insurance charge would more than carry the losses for the land bank system as a whole. It is suggested that an insurance charge of one-half of one percent be collected on each loan, that these premium revenues be assigned in three equal parts to the local, district, and national insurance funds, and that losses, when officially determined, be charged equally against these three funds. Associations or districts with higher risks would pay a higher net rate because they would have less to rebate to their members than areas with low risks.

Once this plan is in full operation after an interim period in which the insurance fund is brought to an adequate level, the net cost to the borrower would be only slightly higher. The suggested plan would leave intact the basic concept of a uniform interest rate, but would relate net costs of credit more realistically to differences in the real cost of providing credit.

However, the shift from the present system of absorbing risk through capital stock reserves plus a risk margin within the interest rate to a plain insurance fund operation would require considerable further study for full evaluation, and particularly for specific recommendations.

SUGGESTIONS FOR STRENGTHENING THE FEDERAL FARM CREDIT SYSTEM

B. THE COOPERATIVE AND MIXED OWNERSHIP SEGMENT⁸

Since 1916 the credit facilities now grouped in the Farm Credit Administration have grown from a modest start of twelve regional land banks, with a capitalization of nine million dollars, to a comprehensive system of more than fifty corporations with assets in excess of two billion dollars.

This huge network of credit agencies did not, of course, come about through gradual implementation of a preconceived over-all plan. Additions were made as new needs arose and as farmers and the Congress became convinced that new agencies were needed. Some lending facilities, such as those for feed and seed loans and regional agricultural credit corporation loans, were provided to meet specific emergencies. Others, like the intermediate credit banks and the banks for cooperatives, were designed as permanent agencies to serve agriculture in normal times as well as in emergencies. Still others, like the production credit corporations, were established to facilitate transition to a situation in which, presumably, the parent corporation would not be needed.

The system now has back of it more than thirty years of experience. It has demonstrated its worth to the farmers of the United States, and has shown that it can be an important factor in stabilizing a large segment of the national economy in times of severe depression. The wisely conceived and far-reaching reorganization made in 1933 was largely responsible for introducing the flexibility and scale of operation necessary for it to perform this service.

It is evident, however, that any complex system of this kind, whether public or private, should be reviewed from time to time with a view to simplifying structure, eliminating obsolete features, and increasing efficiency. Conditions change, and likewise the methods and policies of competitors. Government agencies must also be modified and adjusted if they are to meet fully their obligations to the public.

The plan of organization suggested in the following pages grew out of about a year of study and consultation. In approaching this problem, it was the unanimous view of the authors of this report

⁸ Presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947, by Murray R. Benedict.

that, so far as practical, chief reliance should be placed upon private initiative and cooperative action in performing functions of this kind, with the government facilitating and guiding such activity and taking more specific action only where that seems to be essential for carrying out policies determined upon by the Congress.

For clarity it is necessary to present a single consistent plan of organization. It should be emphasized, however, that the authors do not take the view that there is only one right way to organize the system. Large elements of judgment are involved, and personal philosophies inevitably affect conclusions. No doubt this plan can be improved. Perhaps a better one will be devised. Whatever changes may be brought about will, of course, be the result of compromises as among many different opinions. Also, it should be clear that if this or a similar plan is adopted it cannot be put into effect all at one time, and should not be so rigidly prescribed as to preclude gradual evolution. New developments such, for example, as the proposed research and service organization should be undertaken gradually and on a modest scale with a view to enlarging and adjusting them as experience is gained. A single chart and organization plan cannot show transition stages nor take account of modifications that may appear desirable as experience is gained. Hence it must inevitably appear more drastic and revolutionary than the reorganization process to which it relates. If the proposals here presented prove helpful in the numerous studies and discussions of this problem that are going on, in farm groups, in administrative agencies, and in the Congress, they will have served their main purpose.

The authors have undertaken to look at the problem broadly in terms of the over-all interests of farmers and of the public generally. Existing organization has been used as the framework, and changes are not suggested merely for the sake of change. On the other hand, there has been no effort to suggest retention of a given agency or function merely because it now exists. Most of the changes proposed are to overcome weaknesses which seemed apparent or to provide mechanisms that in the opinion of the committee could provide the same services in a more efficient and economical way. In some cases additional services have been suggested that go beyond those now provided.

In broad terms, the organizational changes proposed are as follows:

1. Bring the lending functions of the existing loan agencies into a single comprehensive agricultural credit system designed to provide adequate credit for the nation's agriculture in a coordinated and efficient way while maintaining needed segregation of the cooperative and direct loan systems.

2. Provide for a Governor of the combined agency and an advisory board of six members appointed by the President, with the advice and consent of the Senate, plus certain ex-officio members whose duties would be to aid in coordinating the work of the agricultural credit agency with related activities in the Department of Agriculture, the Treasury, and the Federal Reserve Board.

3. *Transfer to the appropriate divisions the functions now performed by the Governor of the Farm Credit Administration, the Administrator of the Farmers' Home Administration, and the four "Commissioners."* Provide for a top executive staff consisting, in addition to the Governor, of two Deputy Governors and two Directors. The two Deputy Governors, under general supervision of the Governor, would have charge respectively of the Cooperative Loan System and the Direct Loan System. One Director would be responsible for the Division of Finance and Discounts and the other for the Research and Service Division.

4. Consolidate the twelve intermediate credit banks into a single Agricultural Discount Bank with a branch or agent in each district.

5. Transfer the functions of the twelve production credit corporations to the proposed district agricultural banks and the district banks for cooperatives.

6. Provide for more borrower participation in the selection of district boards and more responsibility on the part of local boards.

7. Provide for better distribution of risks as between the local, regional, and national units of the Cooperative Loan System.

8. Eliminate the position of General Agent as a separate position in each district and accomplish coordination by means of a district coordinating committee, the chairman of which would be the president of one or the other of the two district banks proposed. The chairman would be appointed by the Governor on recommendation of the district board, and would have delegated to him such authority for coordination of the various units as the Governor may assign to him. Other members of the coordinating committee would be the appropriate district officers in the cooperative and direct loan units.

9. Transfer the functions of the Central Bank for Cooperatives to the proposed Agricultural Discount Bank and Federal Farm Loan Corporation.⁹

10. Transfer the ownership and control of the banks for cooperatives as rapidly as practical to the borrowing cooperative associations.

11. Strengthen the financial position and capital arrangements of the local and district units.

⁹ Some members of the committee expressed the view that the transfer of authorization for making facility loans to cooperative associations should be to the Federal Farm Mortgage Corporation rather than to the Federal Farm Loan Corporation. This is discussed more fully in a later section.

12. Coordinate all research, appraisal, and educational activities under the general supervision of a Director of Research and Service.

13. Transfer the appraisal service to this consolidated Research and Service Division as a self-supporting unit, which would conduct appraisals for a fee for any of the credit agencies and for the general public as well.

14. Bring into the system the lending activities of a number of other government agencies making agricultural loans of various kinds.

15. At the local level, combine wherever practical the NFLA's and the PCA's under a single board with a single secretariat with such adjustments as may be needed in territory covered.

16. Consolidate in a single office at the local level most types of direct loans and provide for coordination of these loaning activities with those of the cooperative units, both at the local and district levels.

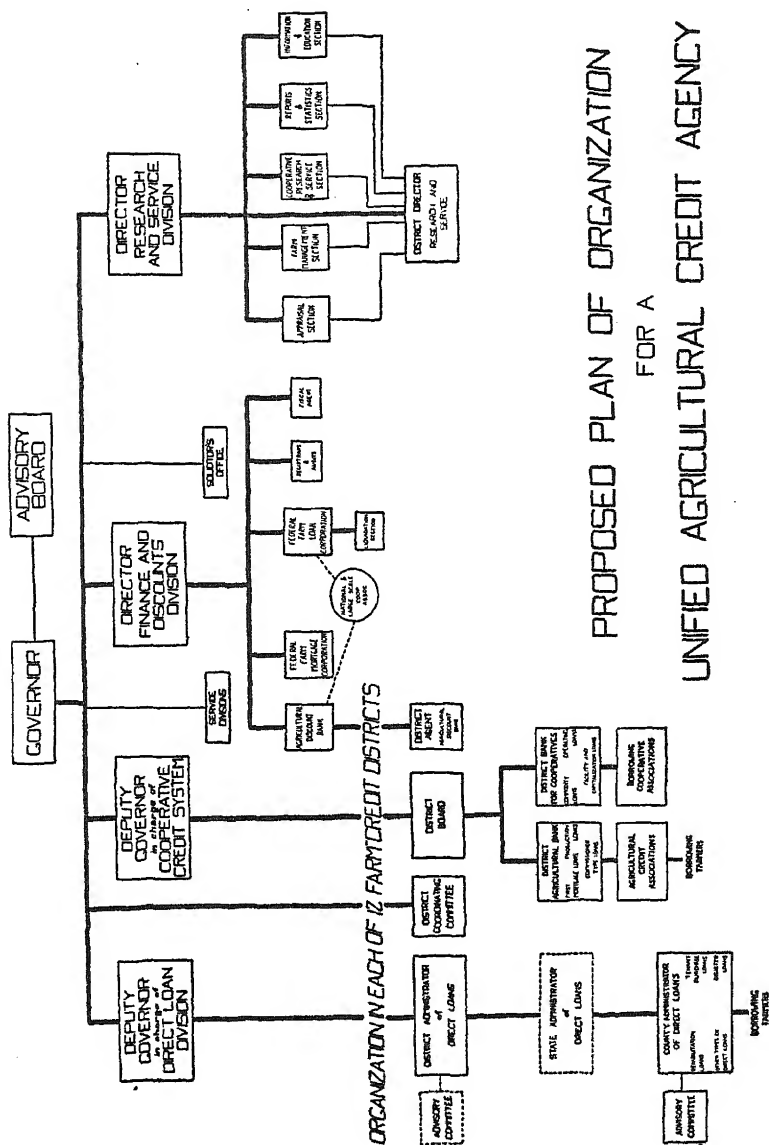
17. Provide for more adequate local counsel in making direct loans.

Figure 1 shows in graphic form the organization of the federally sponsored farm credit agencies approximately as it now exists. Figure 2 presents in graphic form the proposed plan of organization which is briefly outlined above.

When such a comprehensive and coordinated agricultural credit agency as that proposed has been established, all new acts providing funds or mechanisms for making agricultural loans should be integrated with it and should be consistent with the general policies and framework adopted. If that policy is not followed, there is strong likelihood that the problem of overlapping agencies and funds and of inconsistent policies will again arise in the course of a few years. The combined agency set up should be sufficiently broad in concept and design that any desired type of agricultural credit can be fitted into it.

Organization at the National Level

At the national level the proposals contemplate a single, coordinated system for supplying government credit based on direct Congressional appropriations and governmentally sponsored credit obtained through cooperative agencies established and supervised by the Government. To this end it is recommended that the loaning activities now in the Farm Credit Administration, the Farmers' Home Administration, and in some other agencies of the Government (later discussed separately) be brought together under a single administrative head and policy-shaping advisory board. While the various kinds of loans would thus be coordinated and brought into harmony with a broad over-all national policy on agricultural



credit, the "direct loan" system and the "cooperative loan" system should be maintained as separate operating divisions at the national, district, and local levels. The reasons for this will become clearer as the proposed plan of organization is discussed. The two systems obtain their funds in different ways, require different forms of organization, and have different relationships to the Government and to the borrowers. Each should develop the kind of specialization and organization best suited to its functions but in harmony with the other system, and in keeping with well-considered plans for adequate over-all credit service to agriculture.

It is not proposed that all activities that have been handled by the Farmers' Home Administration and the Farm Security Administration be included in the work of the proposed farm credit agency. Those which the Congress chooses to authorize would, however, be continued in other agencies. Some of them will probably eventually come under more comprehensive arrangements for serving agriculture generally. For example, the health services provided through the Farm Security Administration may become part of a more general rural health service; the housing, provided in a very limited way, may become part of a more general program for the improvement of rural housing. The farm labor activities have already been shifted to other agencies. The educational and advisory activities now provided would be made available through the Research and Service Division which is described in a succeeding section of the committee's proposals.

Such an integration of existing agencies would have a number of important advantages. Among them are the following:

1. It would be possible to do away with unnecessary duplication of field staff in the handling of loans to farmers. Several agencies have heretofore had large field staffs handling direct loans such as crop and feed loans, rehabilitation loans, tenant-purchase loans, and so on. Expense could be cut down, and better administration could be provided if there were a single agency handling each principal type of loan in each locality. Staff could be more readily expanded to meet special needs, and contraction of staff would be more feasible when the volume of business is small in any given locality. In addition, there could be more joint use of service facilities by the cooperative and direct loan systems, as for example, in appraisals, accounting, research, etc.
2. Competitive lending between governmentally sponsored agencies could be reduced or eliminated. The marginal borrower needing special consideration could be given special aid as long as needed, but the loans could be better designed to build up the ability and equity

of the borrower so that he may become eligible for participation in the regular cooperative credit system where direct government loans would not be needed.

3. Such an arrangement would make possible better service to borrowers and would facilitate better coordination at the local level. As it is now, the prospective borrower must consult a variety of agencies in order to gain full knowledge of the loan facilities available to him.
4. It would make possible a more adequate and comprehensive offering of credit under uniform policies than now exists.

The Governor and the Advisory Board

The executive officer of the system would be a Governor, appointed by the President with the advice and consent of the Senate. In addition, it is proposed that there be an advisory board of six members appointed by the President for staggered terms of six years each. No two of these should be from any one district. They should be chosen on the basis of broad knowledge of agriculture and familiarity with agricultural credit problems. The board should be selected with a view to providing a wide range of experience, and good balance as between the interests of borrowers from the "cooperative" and the "direct-loan" divisions of the agency.¹⁰

The board would be a policy-advising board rather than an executive body. It would be nonpartisan and would have its own chairman, elected by its members. The Governor would be an ex-officio member, and provision would be made also for the Secretary of Agriculture, the Secretary of the Treasury, and the Chairman of the Board of Governors of the Federal Reserve System to have ex-officio membership, either in person or by representative, in meetings of the full board. The appointed members should, however, be authorized to meet in executive sessions without the ex-officio members if they so desire. The purpose of the ex-officio membership is, of course, to maintain suitable coordination of activities with other branches of the government. Ex-officio members would not be voting members of the board.

This proposal is a compromise between the present organization and the full-time bipartisan board advocated by some farm and Congressional groups. It would retain the advantage of faster and

¹⁰ The organization here proposed could be set up either within the Department of Agriculture, as at present, or outside. There are differences of opinion on this point both in the Congress and among the farm organizations. There was no unanimous view in regard to it in the committee whose report is here under discussion. A decision on it can, of course, come only from the Congress.

more decisive action which can be had with a single executive officer and, at the same time, provide the broader counsel and stabilizing influence that would come from having a board. The committee has studied with considerable care several of the alternative proposals with respect to the executive management of the combined agency. Among these are the proposal for a full-time executive board and for the appointment of the Governor by the board. It is felt, however, that the plan proposed would provide the most efficient operation, the most effective relation to the Congress, and the most clear-cut division between policy-making and executive functions.

The problem of suitable organization for administering government agencies is a very controversial one. Nearly all types of organization have been tried in one or another of the government agencies. Nearly all types have worked well in some cases and badly in others. The personal relations of the individuals concerned outweigh any specific organizational form. Nevertheless, there appear to be some functions which are best handled by an individual administrator while others are better suited to boards and committees. In general, boards function best on judicial and policy matters while individual executives do a better job on operation.

In the management of the farm credit system the principal objectives are as follows:

1. To have available to the Governor broadly representative and competent counsel in the formulation of policies.
2. To provide the Congress with full and competent information on the functioning of the system, the needs for credit, the conditions prevailing in regard to credit, and the legislation and appropriations that are needed.
3. To have clear indication by the Congress of the policies and program it wishes to have carried out.
4. To provide for prompt, efficient executive action on operating problems and clear-cut fixing of responsibility for the execution of policies laid down by the Congress, and for the administration of funds.
5. To provide adequate means for expression of the wishes of the farm people of the country and a suitable channel by which they can be brought to the attention of the executive officers of the system and the Congress.

It is the belief of the committee that these objectives can best be attained by a properly constituted and suitably staffed part-time advisory board with clearly defined functions and responsibilities.

Such a board would have the following duties plus such others as the Congress might choose to assign to it:

1. To counsel with the Governor at regular intervals on general policies of the Agricultural Credit Agency.
2. To make annually, or at its discretion more frequently, a critical analysis of the agricultural credit situation in the United States and to report its findings to the President and to the Congress together with its recommendations for changes in legislation, problems needing attention, policies to be followed, etc.
3. To nominate panels from which the Governor would appoint the appointed members of the district boards.
4. To recommend to the Governor the amounts and kinds of direct lending to be undertaken, within the legislative framework provided, and policies to govern such loans.
5. To suggest studies or investigations needed.

The board should have authority to require reports from the various operating units and to employ a modest staff, directly responsible to it, for carrying on its activities. It should convene regularly on a quarterly basis and at other times on request of the Governor or of any two members of the board. It should report to the President and Congress at regular intervals, and should make special and supplemental reports whenever it feels that new conditions or new problems warrant it.

The board should give special attention to needed legislation and appropriations, thus providing the Congress with an intimate and informed source of information on these important matters.

Members of the national board should not be allowed to take an active part in local elections of agricultural credit agency officers nor be eligible for appointment to district boards. They should not hold state or federal elective office while serving as members of the advisory board.

The argument has been advanced that a part-time board could not keep in sufficiently close touch with the work of the organization, and that members of advisory boards tend to be lax about attending meetings. While these constitute real problems it is the view of the committee that they are not insurmountable. The facilities for air travel now make it as easy for members to assemble from all over the United States as it was formerly for New York or Chicago people to meet in Washington, or for St. Louis or Omaha

people to meet in Kansas City. Thus the time required for travel has been lessened substantially. The consideration of broad policies is normally handled in even the largest of private corporations by people who do not give full time to that task.

Such a board should, however, have an able but small staff directly responsible to it. Special investigations and the preparation of reports would be assigned to the staff with specific instructions as to points to be covered and procedure to be followed. This would be necessary even with a full-time board since it is obvious that the routine of investigations and studies would not be undertaken by board members. In addition, the board should, of course, have authority to call on any unit of the system for reports or studies it may desire from them.

The tasks confronting the board during the first year or two following any general reorganization of the system would, of course, be more onerous than when the system has reached a more settled stage and is running smoothly. This fact should be recognized by liberal provision for suitable compensation to board members for extra time put in and by furnishing them with every facility for effective work. The regular compensation authorized should be adequate to make appointment attractive to able men of large stature and should be related in some measure to regularity of attendance at board meetings and to effective participation in the board's work.

If, on the other hand, board members were to be appointed on a full-time basis it would be almost inevitable that, after the first period of intensive work on reorganization of the system, they would tend to busy themselves more and more with operational problems and probably to specialize in various phases of the work. This would tend toward divisions within the board, rivalries between branches of the system, and a loss in general efficiency. Experience with the original Federal Farm Loan Board, with the T.V.A., and with a number of other governmental boards illustrates this danger. Under such conditions neither the President nor the Congress would have a satisfactory basis for fixing responsibility for the failure of the system to function satisfactorily.

On the operating side, it is of paramount importance that the system have a strong, able administrator with clear authority and responsibility for making the organization work smoothly and efficiently. Any feeling on the part of employees that advantages

could be gained through by-passing the Governor and seeking favor with individual board members would be sure to weaken the organization. Furthermore, it is important for the Congress and the President to be able to get a clear and unequivocal statement of policy and procedure from a single individual. Without this, in the event of division within the board, neither the Congress nor the President could be clear as to who could speak responsibly for the organization or could carry out effectively the instructions given. This does not mean, of course, that the views of members of a part-time board should not be available to the Congress. The relationship, however, would be that of an advisor to the Congress rather than that of an official directly responsible to it.

For a part-time board it is likely that men having broad experience, large stature, and intimate contact with agriculture could be induced to serve, whereas accepting membership on a full-time board would necessitate severing other connections and looking to a somewhat unsatisfactory status if not reappointed at the end of a term. Also, a board whose members are actively engaged in other phases of agricultural activity could bring to the system a vigorous and realistic attitude which might be lacking in a full-time board. Not least among the dangers from a highly paid, full-time board that might, after a time, be less than fully occupied would be that such positions might be used for political patronage rather than to bring onto the board men who can best serve agriculture and the nation.

It might be argued that the board should select the Governor as would be done in a private corporation. It is likely however that, even if the Governor were to be appointed by the board, the President would have considerable indirect influence in the selection. Since much of the task to be performed consists in administering large funds appropriated by the Congress, it seems appropriate that responsibility for the appointment be fixed directly with the President so that the Congress may have a control similar to that existing in other executive agencies. This relationship also is likely to make the position attractive to men of larger caliber than would be the case if the Governor were to be appointed by the board.

Internal Organization at the National Level

Under the Governor and the board it is proposed that the organization be simplified and streamlined. The suggestion is that there

be two Deputy Governors and two Directors of divisions and that the positions now known as commissionerships be abolished. The functions relating to management in the central office such as legal, budget, personnel, operations, etc., would be attached directly to the office of the Governor and would be supported in part by Congressional appropriations and in part by contributions from the cooperative units, the latter contributions being those amounts properly chargeable to the cooperative system as its share of the general overhead. The Deputies and Directors would have charge respectively of:

- a. The Cooperative Credit System
- b. The Direct Loan System
- c. The Division of Finance and Discounts
- d. The Division of Research and Service.

The Deputies would be nominated by the President on recommendation of the Governor and would be subject to approval by the Senate. Their terms of office would be for indefinite periods but subject to termination by the President after appropriate notice. The Directors would be appointed by the Governor.

The Deputy Governor in charge of the Cooperative Credit System would have much the same functions as the Governor of the Farm Credit Administration now has, except for the elimination of the direct lending activities now in the Farm Credit Administration.

The Deputy Governor in charge of direct lending would have many of the functions now assigned to the Administrator of the Farmers' Home Administration, but with some added responsibilities such as those arising in regard to crop and feed loans, disaster loans, etc., if funds are provided for those purposes.¹¹

The Director of the Division of Finance and Discounts would supervise the Agricultural Discount Bank, the Federal Farm Mortgage Corporation, the Federal Farm Loan Corporation, the fiscal agent, and the registrars.

The Director in charge of Research and Service would supervise such functions as audit and examination, appraisals, general reports and statistics, and the programs of research, education, information etc., as described elsewhere. Educational, advisory, and service activities with respect to the management of farms and cooperative associations would also come in this division.

¹¹ The readjustment here implied has been provided for in part in the Farmers' Home Administration Act of 1946.

The Cooperative Credit System

The Cooperative Credit System would consist of the district agricultural banks (described later), the district banks for cooperatives, and the local agricultural credit associations, together with the district boards of directors and other related parts of the system. It would also include many of the activities of the proposed Agricultural Discount Bank and the Federal Farm Mortgage Corporation, though direct administrative supervision of these, as of the proposed Federal Farm Loan Corporation, would be the responsibility of the Director of the Division of Finance and Discounts.

Since the proposed changes in the Cooperative Credit System are more fully discussed under the heading "Organization at the District and Local Levels," they are not presented in this section.

The Agricultural Discount Bank

As a means of simplifying corporate structure, providing a wider base for risk-spreading, and bringing about economies in operation, it is proposed that the twelve intermediate credit banks be replaced by a single Agricultural Discount Bank. The capital and surplus of this bank would be created by transfer of the capital and surplus now in the twelve intermediate credit banks. It would operate much as the intermediate credit banks do now but with a branch or agent in each district instead of a corporation. Ordinary loans would not be sent to the central Agricultural Discount Bank but would be made in the districts, under regulations prescribed by the central bank. Unusually large loans, or those creating special problems, would be forwarded to the central bank. This bank would also make commodity and operating loans to the national and other large cooperative associations, thus performing most of the functions now provided through the central Bank for Cooperatives.

The capital of the intermediate credit banks is now provided by the Government, and they are not cooperative institutions. Their main function is to serve as a channel whereby funds in the money market can be made available to PCA's, cooperative associations, livestock finance companies, and other financial institutions.

The capital now provided for the intermediate credit banks would apparently be adequate for such an Agricultural Discount Bank. Corporate structure would thus be simplified, the handling of debentures would be less cumbersome, and risks could be better distributed.

Under this arrangement loans made by the PCA's would be discounted directly with the Agricultural Discount Bank, and the banks for cooperatives might discount their loans with it or sell their own debentures as they are empowered to do at present. It would apparently be simpler and more efficient, however, for them to use the Agricultural Discount Bank.

Under these proposals the Agricultural Discount Bank, though not cooperative in structure, would be strictly a banking institution not concerned with direct grants of federal funds except as to its working capital. It is suggested that its governing board be constituted as follows: the Governor, the two Deputy Governors, and the Directors of the Finance Division and the Research and Service Division.

The Federal Farm Mortgage Corporation

The Federal Farm Mortgage Corporation performed an invaluable service during the middle thirties and should be retained as a means of meeting similar needs if they should arise. Its authority to purchase farm mortgage bonds in times when they are not readily salable in the money market is an extremely important safeguard to the system. It becomes operative only in periods when there is great need for it. It serves not only the farmer and the farm credit agencies but the private lenders as well by aiding them in increasing their liquidity in times of credit stringency. Since this phase of the Corporation's work is largely inoperative in ordinary times, it does not result in any significant expense to the Government except when brought into use in periods of serious financial disturbance. At such times it is a very effective device for doing the thing most needed, namely, injecting into the agricultural economy large amounts of credit to offset those being withdrawn by private lenders.¹²

In addition to its function of providing a market for mortgage bonds the Federal Farm Corporation was, during the 1930's, one of the most effective antideflation devices set up by the Government in any field. Its refinancing activities performed a major service in checking the wave of foreclosures that was then sweeping over the country. As a whole, this program was well handled and the losses were small in proportion to the severity of the disaster in the farm areas.

¹² Some continuing functions for the Federal Farm Mortgage Corporation are however suggested in a later section of the report.

It is evident that first-mortgage, land-bank loans cannot meet adequately conditions of this kind. The loans on which the land-bank bonds are based should be so conservative and safe that the bonds can command the very lowest rates of interest. Nevertheless, when depressions strike, many competent farmers must have loans running to higher percentages of value. Many of these can be made with reasonable safety provided the farmer can have adequate time to work out of his difficulty. The "commissioner-type" loan has proved an effective device for meeting this need and should be retained as a part of the stand-by mechanism of the agricultural credit system.

In addition to its emergency feature the "commissioner-type" loan can perform another important function, though one which is not so vital, since, in ordinary times private bank loans are available as supplements to the "land-bank" loans. Few purchasers of farms can put up in cash 50 to 60 per cent of the purchase price. The first mortgage loan must be supplemented by a second mortgage loan. This supplementary loan may be and often is supplied by the seller. It may also be supplied by private banks. Usually, however, bank loans of this type lack adequate amortization arrangements and run for too short a period. Furthermore, such loans may cause difficulty for the holder of the first mortgage if the borrower gets into trouble.

To overcome this difficulty a loan of the "commissioner-type" should be available in the system, primarily as an aid to new purchasers of farms. First mortgage loans, as in the past, should be held to conservative levels and financed by bonds sold in the regular capital market. The second mortgage loan should carry up to a percentage of value considered moderately safe in ordinary times but beyond levels suitable for mortgages used as backing for the most conservative types of bonds. These less-conservative loans may well be financed through the Federal Farm Mortgage Corporation as in the past. They might eventually be used as a basis for a different type of bond which might have to be sold at a slightly higher rate. The loans should carry an insurance charge adequate to cover the combined risk on them. Under such an arrangement funds could be secured from the regular money market in ordinary times but probably would have to be supplied by the Federal Farm Mortgage Corporation in times of credit stringency.

Purchasers requiring loans in excess of 75 percent of normal

value would be expected to look to tenant-purchase funds rather than to those available through the district banks and the Federal Farm Mortgage Corporation.

The "commissioner-type" loan should also continue to be used for the so-called "prudent investment" loan; that is, for first mortgage loans on farms that are good loan risks but which for one reason or another are ineligible for regular land bank loans. In most cases these are farms on which part of the income to be used in making payments comes from work off the farm. Here the prospects for repayment may be relatively good but the security consists in part of the borrower's off-the-farm income and hence cannot be levied upon in case of default. Because of this such loans should carry an insurance charge in the same way as the second mortgage loans discussed above. With this provision and a conservative loan policy such loans can be made with reasonable safety and can be a great help to a large group of farmers which has otherwise very limited access to funds, either through public or private lending agencies.

Such a plan would, in the opinion of the committee, make for a well-rounded program of land mortgage loans. Regular first mortgage loans of the system should be limited to 50 percent of the total value of the property. This would be a liberalization of the 50-20 basis of the past, but would keep these loans on a conservative basis.¹³ Moderate-risk loans would be handled by the Federal Farm Mortgage Corporation and might go to 75 percent of normal value. Applications for loans at percentages above 75 percent would go to the proposed Tenant-Purchase Section of the Federal Farm Loan Corporation. Tenant-purchase loans when reduced to 50 percent of normal value should be transferred to the district agricultural banks as ordinary first mortgage loans, thus freeing part of the tenant-purchase funds for new loans at higher levels.

In addition to the functions outlined above, it is proposed that the Federal Farm Mortgage Corporation administer, as trustee, the

¹³ This arrangement would allow for more flexibility in lending, particularly on highly developed farms where the improvements represent large percentages of the total value. For highly perishable improvements such as orchards and vineyards it would probably be impractical to make loans up to a full 50 percent of total value. However, such restrictions as might be needed in the interest of safety could be established by administrative regulation. Since this report was written, the Congress has authorized first mortgage loans up to 65 percent of appraised value. This committee considers the conservative first mortgage loan plus a second mortgage loan, as proposed above, a better method of meeting this problem.

insurance funds recommended in a later section. It would also be the logical agency to handle the mechanical arrangements in selling and servicing the mortgage bonds of the Farm Credit Agency.¹⁴

It is proposed that the "commissioner-type" loans be handled through the district agricultural banks along with the first mortgage loans, as at present, rather than to be handled through the direct loan system. These loans are intermediate as to risks involved, and may eventually come to be financed by means of securities sold in the regular money market if the insurance plan suggested above is adopted. It is clear that they can be administered more efficiently in connection with the first mortgage loans than in a separate branch of the credit agency. Appraisal, supervision, and other costs would all be minimized by this arrangement.

The Federal Farm Loan Corporation

It is proposed that all direct appropriations except those now provided through the Federal Farm Mortgage Corporation be administered through a central loan agency to be known as the Federal Farm Loan Corporation. This would administer funds of the following types:

1. The funds transferred from the banks for cooperatives which would result from segregation of excess capital now in those banks and in the Central Bank for Cooperatives. Regular bankable loans by the banks for cooperatives would be handled through the Agricultural Discount Bank, either as discounts or by sale of debentures through the Agricultural Discount Bank as fiscal agent; but facility loans, temporary capitalization of production credit associations, and special loans to other cooperative associations would be provided by the Federal Farm Loan Corporation, usually through transfer to the banks for cooperatives for administration.
2. Funds appropriated for tenant-purchase loans.
3. Funds appropriated for rehabilitation loans.
4. Funds appropriated for crop and feed loans, disaster relief, etc.
5. Other special funds appropriated for loans based primarily on government credit rather than on securities designed for sale in the money market, except funds to be used for loans of the "commissioner-type."

Thus the various federal appropriations for direct loans to

¹⁴ Arrangements should be made whereby bonds and debentures of the system can be made more available for purchase by farmers, local banks, and other investors. This should overcome some of the criticism of the system since investors would be able to place their funds at their net rental value, over and above risk and service costs. Banks, of course, would still prefer to make loans rather than to purchase securities since they are selling services as well as renting funds. Nevertheless a wider sale of the farm credit agency securities would remove some of the objection. For farmers and other investors some type of security similar to the Government's E bonds might well be considered.

farmers and farmers' organizations would be grouped, coordinated, and simplified and the Congress could readily determine the status of the loan funds for each type of loan, and the needs, if any, for new appropriations.

The various direct loan funds would be administered by the Federal Farm Loan Corporation in accordance with Congressional mandate and under policies and directives worked out by the directors of the Federal Farm Loan Corporation. In most cases the loan funds would be assigned to the district administrators of direct loans or to the district banks for cooperatives for use in their respective districts.

Direct appropriations made for administration of the central offices and for various specific types of service would, however, be made directly to the units that are to use or supervise them—usually, of course, the central agency.

The Federal Farm Loan Corporation would be set up as a government-capitalized and -controlled corporation. Directors, as already stated, would be the Governor, the two Deputy Governors, and the Directors of the Finance, and Research and Service Divisions. It would be desirable that the Secretary of the Treasury and the Chairman of the Board of Governors of the Federal Reserve System also be represented on this board in order to facilitate coordination in fiscal and monetary programs.

Organization at the District and Local Levels

The Cooperative Credit Organization

The corporate structure at the district level appears to be more complex than is necessary, and probably more complicated than it would have been had the whole system been set up at one time. It is essential that all unnecessary overhead be eliminated if these agencies are to operate without substantial subsidies. This consideration is especially important in view of the fact that many of the district and local agencies are in keen competition with private lending agencies. If considerable subsidization is required, the system is somewhat vulnerable to criticism both from the private credit agencies and the public. For reasons discussed more fully elsewhere governmental support may be well justified under certain conditions because of the need for having the cooperative credit agencies available in times of stress. In general, however, farmers

and the public appear to feel that the system should be self-supporting in normal times.

In an ordinary bank there usually would not be a separate corporation for long-term and short-term loans. These would be handled in different compartments of the one institution with a single general executive officer. In keeping with this practice the following structure is suggested:

1. That there be at the district level two cooperative banking institutions, one to be known as the District Agricultural Bank, which would have the functions now performed by the Land Bank plus most of those now performed by the Production Credit Corporation; the other, those of the Bank for Cooperatives with some added functions described below. These would have a single board as at present and might or might not have the same president, as the District Board might decide. (Certain proposals for changing the corporate structure of the land banks in order to eliminate the capital stock provision are discussed in a later section.)
2. As stated in a preceding section it is suggested that the intermediate credit banks be replaced by a single, government-capitalized, discount bank with an agent or branch in each district.
3. The cooperative associations have frequently expressed a desire to carry through the original plan of having the banks for cooperatives become borrower-owned and largely borrower-controlled along lines similar to those laid out for the federal land banks. Since the banks for cooperatives now have large amounts of capital stock and guarantee funds supplied by the Government, it is evident that a change to borrower-ownership and control would require considerable time, and would have to be worked out with appropriate safeguards for assuring effective service during a rather lengthy period of transition.

It is the opinion of this committee that the banks for cooperatives can and should be eventually owned by the borrowing cooperatives, but that they also should administer certain funds to be provided by the proposed Federal Farm Loan Corporation for facility loans, capitalization funds, etc. These are more fully described elsewhere. It is suggested, therefore, that the capital stock and guarantee funds now provided to the banks for cooperatives be adjusted to the amounts needed in carrying on a regular banking business consisting in the main of commodity loans and operating loans to cooperative associations. The amounts not needed for appropriate capitalization of the banks would then be transferred to the Federal Farm Loan Corporation for use in making facility and capitalization loans as described below. Under the plan proposed there would still be, in case of need, assurance of support for the banks for

cooperatives through the funds transferred to the Federal Farm Loan Corporation. There would be, however, a clearer segregation than at present of the phase of the business suited for ultimate borrower ownership and control.

Attainment of borrower ownership of the capital of the banks for cooperatives might be either through purchase of stock by the cooperatives or by a small additional interest charge flowing to a revolving fund, which would be rotated after retirement of the government capital and establishment of an adequate working fund. If the revolving fund plan is used, the participation in management would be through memberships of nominal value in accordance with practices already used by many cooperative associations in financing their own operations. If stock ownership is preferred, the requirement for stock ownership should be on a more permanent basis than it now is so as to insure continuously an adequate capital fund.

For most of the banks for cooperatives a rather modest current capitalization would appear to be adequate since loans would not be made from capital but would be discounted with the Agricultural Discount Bank or would be financed by direct sale of debentures.¹⁵ Commodity loans, for the most part, consist of attractive commercial paper that does not involve large risks if the percentage advanced is conservative. Operating loans present more problems, but, with a well established network of cooperative associations under guidance from the banks for cooperatives, the financial situation of the individual associations should improve fairly rapidly. The building up of revolving capital funds *in the cooperative associations* should provide eventually most of the operating funds needed by them except for amounts needed for so short a time as to make self-financing undesirable.

¹⁵ It is objected by some that the banks for cooperatives cannot compete with commercial banks on this basis. It should be recognized, however, that the present extremely easy money market is probably somewhat abnormal and that competition of this kind may not be so intense if the money market becomes more firm. If it should continue, it is hard to make a strong case for tying up large amounts of government money in order to create competition in a loan market already supplied at extremely low rates of interest. Careful study should be given, however, to the possibility of giving the banks for cooperatives more flexibility in meeting competition of this kind. With the larger loans usually supplied by them they may be able to handle money on narrower spreads than would be appropriate for funds secured to finance farm production loans.

District Boards of Directors

Under the organization proposed there would be a clearer segregation of the cooperative units of the system from the direct loan activities. As this comes into effect it would seem appropriate that more authority be granted to the district and local boards. Until government capital is largely retired, the Governor should have a controlling voice in the selection of district boards as at present. When government funds have been retired from the Agricultural Bank and the Bank for Cooperatives in any district, the cooperative units should then be given more authority in the selection of directors.

To this end it is suggested that after that stage is reached the directors be selected as follows:

Two elected by the local agricultural credit association.

Two elected by the members of the banks for cooperatives.

Two appointed by the Governor from nominations made by the local associations.

One appointed by the Governor.

At such time as the banks for cooperatives come to be owned substantially by the member cooperative associations, it may be desirable to consider having a separate board of directors for each of those banks, such board to be elected in the main by the participating associations. This would leave as the function of the other district boards mentioned above the supervision of the land-mortgage and PCA loans.

The basic conception of the plan outlined above would be to bring all governmentally sponsored loans for cooperative associations into a single system designed to be eventually self-financed and self-supporting. The special fund which was originally appropriated under the Agricultural Marketing Act of 1929 would be used in accordance with its original purpose (aside from the price stabilization phases), namely, to aid in establishing a sound system of agricultural cooperatives. It would be broader, however, than merely to aid cooperative marketing associations. It could supply facility loans and capital for cooperatives of all types.

Functions Now Handled by the Central Bank for Cooperatives

There are some types of loans to cooperatives that are not well suited to the resources and area limitations of the district banks

for cooperatives. Among these are the loans made to national and regional cooperatives and some of the larger loans needed within given districts.

Under the plan proposed, national and regional cooperatives would deal directly with the Agricultural Discount Bank on commodity and operating loans. Large loans to cooperatives within a given district (except facility loans) would be handled as at present except that they would be turned over to the Agricultural Discount Bank instead of the Central Bank for Cooperatives, or possibly be handled jointly by the district Bank for Cooperatives and the Agricultural Discount Bank.

Facility loans would be handled either from Federal Farm Loan Corporation funds assigned to the district banks for cooperatives, or, if too large for the district bank or if requested by an association that operates in more than one district area, they would be handled directly by the Federal Farm Loan Corporation.

Merging of NFLA's and PCA's

It is suggested that the plans contemplate the merging of the NFLA's and the PCA's into a single series of local farm credit associations.¹⁶ While it is probably unwise to make such consolidation mandatory, the farm credit agency should make it a settled policy to move in that direction as fast as practical. The necessary permissive legislation should be provided, and the district banks should encourage such merging and give active help in working out revisions of territory and other problems requiring solution. In some situations there are, of course, sound reasons for not merging the two kinds of associations. Here the aim should be to settle upon a logical pattern of area coverage based upon efficiency of operation rather than historical precedent, and to make the adjustments to it within a reasonable period of time. Conditions of this kind might be found, for example, in certain of the mountain states where a small, compact, irrigated area concerned mainly with land loans might be found within a much larger range area chiefly concerned with livestock loans. In situations of that kind it would probably be inadvisable to bring both associations to the scope of a common territory, and there might be very little duplicating membership in the two associations.

¹⁶ Considerable progress looking in this direction has already been made in several of the districts.

The process of merging these two types of local associations would be carried out by means of a series of intermediate steps which would be roughly as follows:

1. Urge readjustment of areas served so that the boundaries of the PCA's and NFLA's would coincide. This implies some contraction of territory for many of the PCA's and some enlargement of territory for some NFLA's.

2. Encourage election of the same members to both local boards of directors. This, however, would require some change in the law since it may be that land bank borrowers will not be PCA borrowers and vice versa. After the more complete merging contemplated, memberships would not be by classes of loans, but in the combined association. It does not appear necessary to provide for election of specified numbers of directors to represent each type of loan since many would have both types and the desire for successful operation of the association would tend to preclude serious unbalance in the boards selected.

3. As soon as practical, put the handling of the local offices of both the NFLA and the PCA under a single administrative officer. Possibly a different name for such an officer than the present one of "Secretary-Treasurer" might be more appropriate. Where considerable business is transacted, there would be need, of course, for additional employees, but these would not be of coordinate rank even though they were specialists on one or the other type of loan.

The eventual organization contemplated would be a farm credit association on a membership basis with the membership continuing for as long as the member is farming in the community, unless canceled for cause by unanimous vote of the directors. One membership would entitle the borrower to participate in either type of loan activity. Such an arrangement would give most borrowers a more continuous contact with the association and would tend to bring about increased interest in the affairs of the association. As at present members would cease to be voting members after specified periods in which they have not been borrowers.

Since the production credit corporations would be eliminated, supervision of the PCA's until such time as they are merged with the NFLA's would be vested in the district agricultural banks, except for such control as would result from any capital loans made through the banks for cooperatives.

Since the plan proposed provides a measure of joint liability for losses, the local association should be free to refuse membership when in doubt about the financial responsibility of the applicant. This might, however, be handled merely by refusal to loan even

though membership had been granted. Normally such borrowers would be forced to seek either direct government loans or private lending agency loans. It is probable, however, that the district banks should have authority, as at present, to make some loans direct to borrowers at a higher rate of interest. This would take care of isolated borrowers and also could be used if desired as a means of handling situations in which applicants appear to have been unwarrantedly excluded from membership in the local association.

District Coordinating Committee

It is suggested that, as a means of coordinating the discount function at the district level with the activities of the district Agricultural Bank and the Bank for Cooperatives, the appointment of the district agent or manager for the Agricultural Discount Bank be made by the Agricultural Discount Bank subject to approval of the district board of directors, and that he be a member of a district Coordinating Committee of which either the president of the district Agricultural Bank or the president of the district Bank for Cooperatives (depending on designation by the Governor) would be chairman. In appointing the chairman of the District Coordinating Committee the Governor would delegate to him authority for coordinating the various activities at the district level. He would thus have the duties and powers now assigned to the General Agent, and the position of General Agent would be eliminated as a separate office. The chairman of the coordinating committee would, however, hold two positions, one as president of one or both of the banks and one as coordinating officer. Other members of the coordinating committee would be the president of the other bank, if each has a separate president, the district representative of the Agricultural Discount Bank, the District Administrator for Direct Loans and the District Administrator for the Research and Service Division. The Governor might, at his discretion, designate certain other individuals as members of such coordinating committee if there appears to be need for closer correlation of their work with that of the other units.

Substitution of Insurance Funds for Capital Stock

The capital stock and surplus of the NFLA's, PCA's, Federal land banks, and banks for cooperatives were intended as equities to protect the purchasers of bonds and debentures in case of losses on specific assets pledged as backing for those securities. This ar-

rangement has not worked well for several reasons, among them the following:

1. Many local associations have not been able to build up reserves adequate to absorb losses assignable to them under present laws and regulations.
2. If losses were absorbed through charges against capital stock, the association's capital was impaired and its ability to make new loans restricted.
3. If stock capital is not to be used for absorbing losses, it becomes an unused reserve which is of little significance except in case of liquidation of the association.
4. The distribution of losses under existing provisions is not in keeping with the financial abilities of the various units nor with the actual responsibilities they have in making the loans. Drouths, depressions, or other disasters often strike whole areas or even regions and cause losses that are beyond the risk-taking abilities of the local or district units involved. They may not be related to quality of management. Such risks must be spread more widely and under a different plan of distribution than in the past if such hazards are not to result in destruction of the capital structure of local units and even of whole districts from time to time. This principle is recognized in the existing plan of organization which provides for some joint assumption of risks, but the arrangements now provided result in unnecessary impairments of capital and the immobilizing of some of the equities designed for absorbing such risks. That is, the actual use of such capital funds for absorbing losses results in capital impairment.

To meet this problem it is proposed that certain insurance funds be established along lines indicated below and that the capital stock provisions now in use be gradually replaced by a membership plan accompanied by insurance funds. Aside from the other advantages mentioned, this would place the system in a better position to meet the competition of private lending agencies since it would remove the necessity for purchase of stock in order to get loans.

The proposals for modifying organization and changing the method of absorbing losses are as follows: The voting rights of new members of the local farm credit associations would be put in the form of memberships rather than ownership of stock. In combined associations a single membership would entitle the holder to apply for either mortgage loans or production loans, or both.

To provide the margining funds now created through purchase of stock and accumulation of surplus, two insurance funds would be established, one for land loans and one for production loans. (Certain other insurance arrangements are proposed, but these would

be the principal ones in the Cooperative Credit System.) The insurance accounts for the local associations would consist, at the beginning, of the surplus then owned in each association plus any assignment of funds that might be made from existing reserves of the district banks, these funds to be supplemented at the beginning by loans of such amounts as may be necessary from the Federal Farm Mortgage Corporation.¹⁷ The arrangement proposed does not differ greatly in principle from that contemplated in setting up the system under a capital stock plan. It does differ as to mechanics and would provide more flexibility and fuller use of funds set aside as security to supplement the specific assets on which bonds and debentures are based.

After establishment of the membership plan each new loan would carry an insurance charge of one-half of one per cent (or such other amount as might be found necessary) in addition to the regular interest charge. This one-half percent would be paid into three insurance funds: one at the local level, one at the district level, and one at the national level. Losses incurred would be paid out of these insurance funds on the basis of one-third from each as described more fully in a later section. The collection of this one-half percent insurance charge would not mean a net increase of the full half percent since the borrower would not be paying for or foregoing interest on the capital stock as at present. The present cost to the borrower, on mortgage loans, amounts to about .25 of one percent (at 4% on a 5 percent stock investment carried throughout the life of the loan.) The insurance funds would not be available for regular operating expenses.

It is suggested that the Federal Farm Mortgage Corporation loan to the local insurance funds and, if necessary, to the district and national funds such amounts as may be needed for initiation of the plan. When such a loan by the Federal Farm Mortgage Corporation, if made, has been retired, the insurance fund would be handled in a way similar to a revolving fund in a cooperative marketing association. Any excess above the minimum requirement for safety would be paid back to the borrowers as a patronage refund.

The insurance funds should be built up until they would equal at

¹⁷ This would require establishment by the Congress in the Federal Farm Mortgage Corporation of an initial insurance fund adequate to initiate the program. Such a plan would be comparable to the plan used in starting the Federal Housing Administration insurance plan and a similar one in the Federal Deposit Insurance Corporation.

least 10 percent of the outstanding loans covered by them (or such minimum as may be established by the district boards and the Governor.) After the fund has been built up to where it provides an adequate margin of safety, the full amount of the local association's share of the retain would be paid out to the insured borrowers if there were no losses. Losses chargeable to the local association would, of course, come out of the association's account in the insurance fund. The insurance fund would presumably be invested in *conservative securities and the income from these securities* might be used for operating expenses as is done at present in the PCA's.

Up to the present time practically all reserves in the system have been built up in the land banks. Under the plan proposed, reserves for meeting losses would be built up at the local, district and national levels. Reserves now in the land banks would be retained as added coverage (above the capital stocks of local associations) to meet possible losses on loans now held, since these and the stock constitute backing for the bonds now outstanding. However, since both the borrower equity and the capital stock backing increase as the loan is paid down, the district banks should be able either to declare increased dividends or make some contribution to the insurance funds of the locals as the volume of stock-margined loans declines. It is likely that in many cases the transition could be speeded up through voluntary change-over to the insurance plan, with the consent of the borrower and the bondholders. In that event stock held by the borrower would be retired and he would come under the insurance plan.

It is important that the refund of insurance charges not needed for meeting losses be initiated at as early a date as possible, since this will focus attention on the relation between losses and refunds, and make clear in the minds of the borrowers that the extra half percent is not merely an increase in the regular interest charges.

The operating income of the local association under this plan would consist of the spread between the cost of funds and the basic interest rate charged the borrower plus the income from securities. Dividends might be paid from the operating income whenever income is above expenses if the board so decides. The board could, however, at its discretion build up a liquid reserve for operating purposes from which loans could be made before pledging of the notes or mortgages. The dividends mentioned above would be on the

basis of the amount of interest paid in during the preceding year.

The procedure outlined above implies assigning to the local association both on mortgage loans and production loans a definite and regular percentage of income on the loans outstanding. In other words, the operating income of the local association would not depend upon specific grants by the district directors, as is the case for many of the NFLA's at the present time. This, of course, opens up the possibility that some associations with a large volume of business might conceivably operate extravagantly at the local level and not return as much in dividends as would be possible. This, however, seems to be a responsibility the local board should take and not one that should be controlled by the district administration unless there are flagrant abuses.

A more difficult problem arises where, even with conservative and efficient management, a local association is not able to get enough to pay its way. This might occur in situations where the competition is unusually keen and effective or where the association is very small. Some provision should be made in such conditions whereby the Federal Farm Loan Corporation or the district bank can make to the local association sufficient contribution to keep it in existence and available in times of great need.¹⁸ As yet, there seems to be no assurance that farmers will give as much business to the Cooperative Credit System in times when credit is readily available as they will when credit from other sources is difficult to get. It is undesirable, however, that the cooperative credit association should have to go out of business in such a period since it is likely to be greatly needed when another period of stress comes on. If such grants are necessary, the district administration should have authority to supervise the local management until the association is self-supporting and should have authority, when it feels the deficit is due to bad management, to require a change in management as a condition of giving the support indicated above.

Under the plan proposed above, capital stock would gradually

¹⁸ For many associations, especially in areas where most of the farms served are small, a major difficulty lies in the high cost of making small loans. Consideration should be given to handling such loans more informally and insuring to cover losses that might result from omitting title search and official inspection, these functions being replaced by informal reports and recommendations by local directors or members of the association. There is good reason to expect that the losses chargeable to such an insurance fund, on small loans, would be less than the cost of making formal inspections and title searches. If the charges to the borrower were continued the income of the association would benefit by the difference between the charges made and the cost of the insurance. This, if substantial, would put associations serving such areas in a much better position than at present.

be eliminated from both the local farm credit associations and the district banks. Instead borrowers from the local associations would have a continuing membership at a nominal cost and the association would have two insurance funds and two operating funds, one each for long-term and short-term loans. Operating expenses would be borne by the two operating funds in proportion to the costs of providing the two types of service. The insurance funds would provide the local association's share in losses in the respective categories, and would, in the course of time, be paid out in patronage dividends, except for losses that may have been incurred.

The local farm credit associations would in turn have memberships in the district banks, and the land bank stock would be retired. The district bank would also build up two insurance funds, one to cover losses on mortgage loans and one to cover losses on short-term loans. These would be derived from the insurance charges on loans and, as they come to exceed amounts needed for insurance purposes, would be refunded to the locals.

It is suggested that, as a means of clearly segregating the insurance funds from operating income, they be administered by the Federal Farm Mortgage Corporation. This might mean that the accounts for each district would be maintained within the district, but by a representative of the Federal Farm Mortgage Corporation rather than by the district bank. The Federal Farm Mortgage Corporation representative would operate in a trustee relationship, receiving the payments made by the local associations and the district bank and disbursing them in accordance with the regulations adopted.

The national insurance funds would come from the assignment to these funds of their one-third of the insurance charge collected on each loan. These charges presumably would not be added risk costs but instead a further spreading of risk.

Whenever the national insurance funds are judged adequate to meet probable demands on them, the amounts paid in would be refunded currently except for any losses incurred by them.

There are several ways in which losses incurred might be distributed.¹⁹ In the opinion of this committee it would be desirable to maintain a decentralized system in which losses would normally be borne equally by the local, district, and national insurance

¹⁹ One alternative that has been suggested is that there be a single national insurance fund and that all losses be borne by it. This, of course, would imply paying into the national fund all insurance charges collected, and variable premium payments for the different local and district units based on their loss histories. It would,

funds. The principle underlying the existing system (for mortgage loans) is that losses will be borne first by the local association in which they occur. If they exceed the financial abilities of the local association, they become obligations of the district bank. If they run beyond the power of the district bank to meet them, they are borne by the system as a whole through a plan of pooling reserves.

In making loans the units at all three levels assume some responsibility; the local unit through its recommendation of the loan, the district unit through its approval of the loan, and the national organization through its appraisal service and general regulations. Because of this the equal sharing of loss recommended above is suggested. In the event, however, that the insurance fund of the local association is exhausted as a result of such losses, its share over and above what could be borne by its insurance fund would be assumed by the district bank in the form of a loan from its insurance fund. If losses are so widespread in the district that the district bank's insurance fund is insufficient to meet its share, plus any deficit in contributions by the locals in its district, the remainder would be assumed by the national insurance fund as a loan to the district fund. Losses exceeding these resources might be met by grants or loans from the Federal Farm Mortgage Corporation or by special appropriations made by the Congress. So general a catastrophe would not be likely to occur except in a nationwide breakdown of farm incomes such as that of 1932. In such a case the Congress would likely come to the rescue of the system.

Where presumably temporary or localized financial difficulties lead to a need for extensions of time on loans otherwise considered good, loans would be made from the insurance funds of the district banks to their locals or from the national insurance funds to the district banks in order to permit such extensions of time.

The proposal made above that the Federal Farm Mortgage Corporation administer the insurance funds would probably increase the confidence of local associations that the insurance funds were separate from the operating income and expenses and were held as separate and distinct funds rather than merely as book accounts in the district banks.

however, result in less incentive for careful handling of the loans of a given association or district since classifications for the purpose of fixing premium rates probably would not be changed at frequent intervals and heavy losses in a given local or district would penalize other units to the same extent as the one in which the losses occurred.

THE FEDERALLY SPONSORED CREDIT SERVICES
TO AMERICAN AGRICULTUREC. THE DIRECT LOAN SYSTEM²⁰

Contrary to popular understanding, direct government lending is not a creation of the "New Deal" but had its beginnings in a feed and seed loan program initiated by order of President Woodrow Wilson nearly thirty years ago. The idea was given legislative sanction and greatly extended through the Agricultural Marketing Act of 1929, the regional agricultural credit corporations of 1932, the Resettlement Administration of 1933 and its successors, the Farm Security Administration of 1937 and the Farmers' Home Administration of 1946. At the present time direct government loans to farmers are administered in the main by the Farmers' Home Administration. The program as at present interpreted represents not merely an addition to the publicly sponsored credit service to American agriculture but a new approach to the farm credit problem and a new philosophy of government responsibility to low-income farmers. The principles which the committee felt should govern loans of this type have already been stated in the introductory section of the report. The comments which follow relate therefore in the main to organizational arrangements designed to implement those principles.

The Direct Loan Division would have three main functions from a credit standpoint:

1. To make loans to meet distress situations.
2. To make loans designed to improve the status of farmers in cases where this cannot be done through regular types of loans.
3. To provide long-term land-improvement or land-amelioration loans of types not suited for handling through the usual land-loan procedures.

There may be need occasionally for other types of direct loans, as for example, loans made to encourage certain new types of production for war purposes. It seems likely, however, that these will not be needed in ordinary times.

As stated in the preceding section, it is proposed that all direct appropriations, except those now provided through the Federal Farm Mortgage Corporation, be administered through a central loan agency to be known as the Federal Farm Loan Corporation.

²⁰ Presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947, by George H. Aull.

In keeping with the organization proposed above, there would be in each district a district administrator of direct loans who would be under the supervision of the Deputy Governor in charge of the direct loan program. The district administrator would have offices in the same building as the district units of the cooperative loan system and would be a member of the district Coordinating Committee described in an earlier section of the report. He would have charge of the field staff for all direct loaning activities including, where necessary, state offices as well as county offices.

It is contemplated that, in the main, the direct loan system would use the facilities of a Research and Service Division (elsewhere suggested) rather than to build up a large staff of specialists of its own. Its own personnel would be used primarily for making, servicing, and collecting its loans, *except for such amounts of supervision and general service as could be carried on more economically through its field staff than by the Research and Service Division.*

The district administrator for direct loans should consult from time to time with the district board in order to have its advice and counsel, and should be permitted, if he so desires, and with the consent of the Governor, to establish a small advisory committee for counsel on the direct loan program. Such advisory committee, if created, should be appointed by the Governor with the advice of the district Coordinating Committee.

Kinds of Loans to Be Made by the Federal Farm Loan Corporation

The funds of the Federal Farm Loan Corporation would be used for the following purposes and such others as might be designated by the Congress:

1. To make various types of disaster loans of the types formerly provided as crop and feed loans, disaster relief loans, flood relief loans, and Regional Agricultural Credit Corporation loans.
2. To make habilitation loans of the kind now provided through the Farmers' Home Administration.
3. To make tenant-purchase loans. These would be provided as at present, subject to such criteria as the Congress might establish, but would be transferred to the cooperative loan system when paid down to levels that would make them eligible for cooperative-type first mortgage loans. While this procedure would concentrate the tenant-purchase loans in the higher-risk brackets more than is done at present, it would have two offsetting advantages. It would free a part of the tenant-purchase funds at an earlier date so that more loans of that type could be made, and it would avoid giving an unwarranted advantage to tenant-purchase borrowers after they have reduced their loans to levels at which they are eligible for regular

cooperative loans. If the interest rates on tenant-purchase loans should be lower than those on regular cooperative loans, as at present, the tenant-purchase borrower who had reduced his loan to 50 per cent or less of the value of the farm would be getting his loan at a lower rate of interest than the cooperative loan borrower, who presumably would be no better off financially.

4. To make facility loans to cooperative associations and in special circumstances to make operating loans where these are considered desirable and cannot be obtained from other sources. For most of the established associations this would mean amortized mortgage loans on facilities with relatively low risks. It would also permit of some higher-risk facility loans for new associations just getting started or those seeking to correct an unsound capital structure. At the discretion of the Federal Farm Loan Corporation, the District banks for cooperatives could also be authorized to grant operating loans of specified types. The procedure would be for the Federal Farm Loan Corporation to assign portions of the funds available to it for administration by each of the district cooperative banks under regulations prescribed by the corporation and with suitable compensation to the district banks for services rendered. The amount of such business is likely to decline with time since most successful cooperative associations will wish to retire indebtedness on their facilities as soon as they are able to do so. Unusually large loans would normally be handled directly by the Federal Farm Loan Corporation.

5. If the Congress should wish still further to simplify the structure for financing agriculture, a similar arrangement could be made for handling the facility loans of the Rural Electrification Administration. Here again the basic concept is that of a cooperative association. The Agricultural Credit Agency should not take over the engineering and development aspects of R.E.A. but might well handle the financing of the associations once they are established. This would permit R.E.A. to release its funds shortly after construction of lines and to go on to other business, leaving the long-term supervision of the loans to the banks for cooperatives, with R.E.A. providing only such continuing educational and advisory aid as may be needed. Under such an arrangement the electric power cooperatives should probably pay the same rates on facility loans as would be charged to other cooperatives. Whatever subsidy is desirable would appear in the difference between cost of R.E.A. and the loan the Federal Farm Loan Corporation would be willing to make, and would come out of R.E.A. funds. Thus the Congress would have a clear view of the subsidy required and could decide on the scale of development in accordance with this knowledge. Once the loan had been taken over by the Agricultural Credit Agency the Association would presumably be on a sound cooperative basis and without excessive capitalization; hence the association could become a part of the normal cooperative structure in American agriculture.

6. To provide necessary participation in the capitalization of the PCA's²¹

²¹ In this and the succeeding paragraph, for simplicity in presentation, reference is made to the PCA's and NFLA's though proposals are made elsewhere for combining them. The reference here is to the capital funds margining these types of loans rather than to the specific organizations.

This would mean turning over for management through the Federal Farm Loan Corporation the assets now owned by the production credit corporations and abolition of the production credit corporations as separate entities. Government participation in the capital funds of the PCA's would be handled through the banks for cooperatives, either through stock purchase as at present or through loans somewhat comparable to facility loans for other types of cooperatives. The PCA's are a type of cooperative, and would seem to fit appropriately into an arrangement of this kind. Since it is proposed that their operations, aside from the capital loans here suggested, would be supervised by the district agricultural banks, there would not be need for a separate set of corporations to supervise and finance them. The aim would be to get them onto a self-capitalizing basis as soon as practical. This would not preclude, however, the possibility of a stand-by relationship under which Federal Farm Loan Corporation funds might be used as a means of coming to their rescue in times of stress or even of providing some continuing aid in situations where, under well-defined policy, it is considered desirable to maintain a PCA organization even though it is unable to be entirely self-supporting.

7. Federal Farm Loan Corporation funds might also be used if needed in transition financing of NFLA's where some government funds are necessary to enable them to work over onto a sound self-financed basis and in special situations where the public interest will be served by keeping them in a position to make new loans even if they are unable to keep themselves on a fully self-supporting basis. Like the PCA's, the NFLA's are in essence cooperative associations and such loans would be in many respects comparable to facility loans except that the security would rest on prospective earnings rather than physical facilities. In these cases the loans would presumably be of a transition character rather than a continuing support. They would be provided under plans designed to rehabilitate the cooperative, and put it on a sound basis.

8. For making such other types of direct loans as the Congress may decide to make available.

Local Organization for Handling Direct Loans

The following comments relate only to organization consistent with the principles previously discussed and are not intended to indicate policy.

It is suggested that there be a single supervisor at the local level for all direct government lending except commissioner-type loans, such supervisor to have specialized assistants, if needed, to handle the work. This supervisor should, if possible, be housed in the same building with the local agricultural credit association but not necessarily in the same office. He should not be under the direction of the local board nor of the secretary of the cooperative loan association, but would be under the supervision of the district (or state) ad-

ministrator of direct loans. It would be desirable, however, that the local supervisor of direct loans, or the chairman of his advisory committee, be an ex-officio member of the local board of the credit association and that the secretary or president of the credit association be an ex-officio member of the local advisory committee to be discussed in a later paragraph.

The local supervisor of direct loans would handle all types of direct loans except those of the commissioner-type, and those which may be assigned to the district agricultural banks and the banks for cooperatives for administration under mutual agreement between these cooperative units and the Federal Farm Loan Corporation. With the exceptions noted above, the local supervisor of direct loans would be concerned with tenant-purchase loans in the mortgage field, and with rehabilitation loans, crop and feed loans, Regional Agricultural Credit Corporation loans, and other emergency types of loans in the short-term field.

For most loans of these types there is need for more supervision and educational aid to the farmer than for loans under the cooperative system. It is proposed, however, that in the main such aid be provided as a separate function through the Research and Service Division instead of being handled by the loan administrator. Thus the cost of making such loans and the losses incident to them would appear more clearly instead of being intermingled with other expenses which may well be regarded as a part of the government's educational program for farm people. It is to be expected, however, that it will be found more workable and efficient to have some of the supervisory and educational work handled by the loan staff. Separation of the two functions should not be so rigid as to result in unworkable arrangements. The combining of them, where it seems advisable, should, however, be in accordance with regulations established by the Governor rather than merely at the discretion of the district administrator of direct loans.

Local Advisory Committees for Direct Loans

The local supervisor of direct loans should have an advisory committee consisting primarily of local farmers but with some other members with broad community interests. This advisory committee would guide him in local lending activities and, in addition to establishing general policies, would advise as to whether direct loans should or should not be made, and to whom. In other words, it would

operate in much the same way as the committees that are now concerned with tenant-purchase loans. Presumably the final decision on making loans of this kind would rest with the regional administrator of direct loans as the representative of the Deputy Governor in charge of direct lending activities. The reason for suggesting a separate committee to advise on direct loans is that those favorable to direct loaning activities are very likely to feel, first, that the governing board of a local cooperative credit association would be biased in favor of the cooperative system and inclined to turn down any loans that could not qualify under that program and, secondly, that such boards are likely to be made up of the more conservative farmers of the area and hence might not give sympathetic consideration to marginal borrowers such as would be handled under the direct loan program.

THE FEDERALLY SPONSORED CREDIT SERVICES TO AMERICAN AGRICULTURE

D. PROVIDING NEEDED SERVICES RELATED TO AGRICULTURAL CREDIT²²

A reorganization along the lines that have been suggested brings together in one organization the service functions of the existing agencies and may make it possible and desirable to add some services. It is suggested, therefore, that the various supplementary functions not directly concerned with the management of credit, which are now performed in various parts of the Farm Credit Administration and the Farmers' Home Administration, be consolidated in a separate Research and Service Division which would, where practical, provide specialized service for the various parts of the system. Such a consolidation and clear-cut division of labor between banking and service functions should bring savings in cost, increased efficiency, and greater elasticity in responding to changing needs for service. Specialization would enhance the standing of the service units in the eyes of the professions, and thus they would become more attractive to well-qualified personnel. It could also lead to wider utilization of regional experience, observations, and analyses than is possible at present with service activities more widely scattered.

The proposed Research and Service Division would include an Appraisal Section; a Farm Management Section; a Cooperative Management, Service, Audits, and Examinations Section; a Statis-

²² Presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947, by Glenn W. Hedlund.

tical Section; a Research Section; and an Information and Education Section. There would also be, in the proposed Federal Farm Loan Corporation, a Liquidation Division which, for convenience, is discussed in this section together with the activities of the proposed Research and Service Division.

The Appraisal Section

It is suggested that the appraisal service of the federal land banks, which is now supervised by the Farm Credit Administration, be placed under the Director of the Research and Service Division of the combined Agricultural Credit Agency, and that it be expanded and made generally available to government agencies and the public.²³ There is a genuine need for the services of a reliable appraisal system both for the various government agencies and for private agencies and individuals as well. Even if such a reorganization of the agricultural credit system as that proposed should not be undertaken, there would be very good reason for making a consolidated and expanded appraisal service available to various government agencies.

Administrative consolidation along lines already suggested should result in central management and supervision of a national appraisal service, but not centralization of the appraisal work itself. The recommended expansion of service would mean that the one agency could handle not only the appraisals for the land banks, but also those for the tenant-purchase division of the Farmers' Home Administration, those of the farm loan division of the Veterans Administration, and of similar agencies such as state loan agencies for veterans.

Such an appraisal service could also be very useful in connection with receiverships for farms under state or federal laws, such as the Frazier-Lemke amendment to the Federal Bankruptcy Act, and for valuations under inheritance tax laws.

The reasons for these general conclusions are as follows:

1. The Farm Credit Administration has undoubtedly the most comprehensive body of scientific information and the largest staff of trained appraisers in the country today.
2. Some of this information and training was acquired at public expense and should be made as widely useful as possible, with due consideration for the welfare of the organization.
3. It would be wasteful and time-consuming for agencies like the Farm-

²³ For a detailed discussion, see: Karl Brandt, "A Public Farm Land Appraisal Service, Its Desirability and Practicability," this JOURNAL, August, 1945.

ers' Home Administration and the Veterans Administration to duplicate these facilities.

4. It is important from the standpoint of Government relations that the various governmental appraisals be on a comparable basis.
5. A nation-wide consolidated and publicly available farm-land appraisal service would exert a very wholesome stabilizing influence on the formation of public opinion about the earning capacity of land and its value.
6. Such a broadening of activities could lower appraisal costs for all of the government agencies; for the land banks by increasing and stabilizing their work-load; for the Farmers' Home Administration and Veterans Administration by providing better service at lower unit cost than they could provide for themselves.
7. Such a plan would make for a clean-cut separation between the function of making appraisals and that of granting loans. This is desirable in order that the appraised values not be merely "loan values" expressing to a considerable extent the appraiser's opinion about how large a loan should be made on a particular farm.

The extension of a service of this kind to the general public presents some problems, none of which seems insurmountable. It is suggested that the administrators concerned explore the possibility of determining in the appraisals several specific types of value (such as "normal value," "market value," and "distressed sale value"). Every appraisal would indicate in a standard explanation what prices for the principal products of the farm were assumed in the determination of normal value, and that the appraisal relates to the earning prospects of a typical farmer on the appraised farm.

The prospective purchaser, seller, or lender would have to draw his own conclusions in using the appraisal for his purposes. While the appraisal would put strong emphasis on the sustained earning power of the land, it would give the purchaser a good basis for comparing relative qualities of various farms. The comprehensive data available in the land banks with respect to soils, water tables, frequency of drouths, and similar factors would thus come into wider use than at present.

By making such an appraisal service available to the public, the basis for land bank appraisals would become more widely known than at present. Public discussion of the methods used and the principles involved would be a wholesome means of educating the public about the important issue of land values. This advantage would, it is felt, outweigh the possibility that the change may pre-

sent land bank officials with some difficulties. In fact it can hardly be assumed that information on land bank appraisals is not at present fairly widely available to other institutional lending agencies, particularly since the latter in many cases have hired men who were formerly land bank appraisers.

The land banks continuously must defend their evaluations. They may well face the issue and defend their position as being one that is in the long-time interest of the nation and of agriculture. A wider knowledge of what farmers could expect to borrow in the form of land bank loans may have some steadying influence on land values.

It is to be expected that individuals and agencies wanting to sell lands at high prices will oppose the use of such an appraisal service. However, since there would be no compulsion to use it, and the service would be offered at cost, there could be little in the way of legitimate criticism on the score of improper expansion of government-supported action or unfair competition with private agencies.

The Farm Management Section

This section would be staffed with farm management specialists with special regional knowledge and experience. Their service as consultants, professional farm managers, or supervisors of farms would be available to the various parts of the credit system for dealing with specific borrowers and farms. The costs of such service would be charged to the credit agencies calling for it. In so far as such service is a necessary part of direct lending activities, e.g., in rehabilitation or tenant-purchase loans, these costs would be provided through separate public appropriations for this purpose. If the cooperative credit system makes use of such services, it would bear the costs as normal operating expenses, since such service should tend to reduce credit losses and debtor delinquencies.

This service might also be made available to farmers on a contractual basis, upon their application and for a fee, regardless of whether they are borrowers under the Agricultural Credit Agency. Where farmers are unable to manage and operate their farms because of illness, accident, or location of their work, or where the farmer dies unexpectedly, leaving his property in the hands of a widow, minor children, or relatives with no farming interest or

experience, it would be of great benefit to them as well as to the farming community if a trustworthy farm management service could be called upon to make proper arrangements and act in an advisory capacity, or, beyond that, temporarily take over the management in trust for the client.

This service could also be used by the credit agencies as a protective device to stave off the threat of insolvency and the borrower's loss of equity. The establishment of such professional aid or supervision would in all cases require the consent of the borrower, but it would enable the creditor agency to attempt the rescue of a debtor before it is too late to save him. Competent professional managers on the staff of this division should acquire experience that would be superior to that of many individual farm operators.

This service should supplement but not replace the services now made available to clients by private professional farm management companies. Such private farm management services are available at present only in a few areas, chiefly in the Mississippi Valley.

The wider availability of such services which could be provided by the Agricultural Credit Agency would be likely to popularize the use of professional farm management services, and to increase the demand for them while also tending to improve the standards of such services where they are performed by private companies. Arrangements of this kind have a long and successful history in some of the foreign countries.

Another very important purpose of this service agency would be that of providing facilities for handling foreclosed farm properties held by the Liquidation Division (described in a later section). Whenever the Liquidation Division wishes to rent, operate, subdivide, or sell farm real estate, it could obtain the necessary professional service from the Farm Management Section, which in turn would make an equitable charge for its services.

The Section for Cooperative Management, Service, Audits, and Examinations

The business done by agricultural cooperative associations is expanding and gaining strength. A considerable part of the publicly sponsored agricultural credit system is designed for supplying the cooperative associations with credit. The success or failure of a farmers' cooperative association depends largely on the efficiency of its business management. Hence success in supplying the as-

sociation with capital for investment in facilities or for operations depends also on the competence of its management.

Since the management of these associations presents many problems that are different from those of private corporations or other forms of enterprise, it is recommended that the Research and Service Division maintain a special section which will make available to cooperative associations its counsel and analytical services on management problems.²⁴ A fee should be charged for such service. When a unit of the credit agency requests such service, it should bear the cost. If, on the other hand, the request arises from the association, it would be expected to pay for the service provided.

This section should be kept small but efficient, and ready to act wherever the help needed cannot be obtained from other sources such as the land grant colleges and the agricultural extension services.

The same section should serve as an auditing and examining agency for cooperative associations. This service would be rendered at the option of the associations. The aggregate revenues from fees charged should cover the costs, but fees should be equalized to some extent so as to avoid extreme costs to individual associations in distant locations.

The Statistical Section

This section would assemble and coordinate the statistics needed by the central agency and by the district units, except for those which could be more efficiently and conveniently handled in the districts. It would also prepare the more general reports and summaries, except those directly required of the operating units or most readily assembled by them.

Statistics relating to production, prices, stocks held, wage rates, mortgage debt, land values, etc., which are derived from many sources and appear in a variety of forms, would be brought together and presented in such form as to be of use to the operating units. At present this kind of service appears to be more widely scattered than is desirable and could be provided better and at less cost by such a central unit.

Obviously the district units should have freedom to develop

²⁴ This would be substantially in line with many of the activities now carried on by the Cooperative Research and Service Division of the Farm Credit Administration.

locally such statistical service as they feel is needed and worth while. The aim would be to improve the service to them in a way which would result in their choosing to use the central service for those activities which could be carried on more economically and effectively in that way.

Since this would be, in effect, a cooperative service arrangement for the various district and national units, its cost should be borne by them on an equitable basis with appropriate allocation of costs as between the cooperative and direct loan units of the system. Since the various units would be carrying the main expense of the service, they should, of course, have a direct voice in deciding on the amounts and kinds of such work to be carried on. Suggestion has not been made as to the specific mechanism by which such participation in these decisions would be made as this probably could be handled better through relatively informal arrangements than through any prescribed mechanism. It should also be recognized that changes such as those proposed here and elsewhere in this part of the report, if undertaken, should be made gradually and to some extent experimentally. Consolidations not found workable or economical should, of course, be abandoned.

The Research Section

For checking on the performance and status of the whole agricultural credit system, to keep well informed on the economic situation and the environment in which the system has to operate, and to improve its performance in behalf of agriculture, the administrators need an active research unit. This section should be one of the most important parts of the Research and Service Division. It would carry on research chiefly of three types:

- (a) Studies pertaining to the system as a whole, requested by the Governor or the Advisory Board.
- (b) Studies requested by the various units of the agency as an aid in their operations.
- (c) Studies of the organization and management of cooperative associations requested by them or by the Governor, the Advisory Board, or a Deputy Governor.

For research specifically requested by them, the costs should be charged to the particular units or cooperative associations making the request. Research undertaken on the initiative of the Ad-

visory Board, the Governor, or a Deputy Governor, should be paid for out of public appropriations set up for this purpose.

While it is vital that the research section be staffed with research personnel of the highest caliber and be kept at a high level of efficiency, it should avoid encroaching upon the domain of other established government research agencies in a way that would lead to duplication or wasteful competition. Research relating to agricultural credit in general and to the general problems of agricultural cooperatives, should in the main, be left to the Bureau of Agricultural Economics. The emphasis in using the resources of the research section of the Research and Service Division should be put upon types of research intended to contribute to efficiency in the operations of the agricultural credit agency.

The development of a strong research unit should not mean excessive centralization of such work in the national office though much of it could undoubtedly be performed more efficiently there than in the districts, since more specialization would be possible. It would be wasteful for each district to attempt to have highly specialized personnel in the various types of research. There should, of course, be opportunity for the district units to maintain such research activities relating to their regional problems as they feel to be warranted. The maintenance of a close contact with the district boards should, however, be a continuous concern of the central research agency with a view to meeting as fully and as economically as possible the needs of these units, both by efficient, practical work in the central agency and by giving technical aid and encouragement in such research activities as the districts choose to set up locally.

The Information and Education Section

To discharge the responsibility assigned to him by the Congress of keeping the public informed about pertinent developments in the field of agricultural credit and agricultural cooperation, and of making education on such subjects available to farmers, it is necessary that the Governor of the Agricultural Credit Agency have suitable facilities for rendering this service. It is suggested that a special section of the Research and Service Division be set up to provide this service and that the costs be carried at public expense from appropriations specifically provided for that purpose. This section

should not, however, be used in ways which would result in shifting to it expenses which would normally be a part of the regular operating expenses of the operating units.

The Liquidation Division of the Federal Farm Loan Corporation

In a nationwide banking organization with so complex a structure as the present Farm Credit Administration, any changes in its organization create as a by-product the need for liquidating certain branches or agencies. The fact that these are in most cases recipients of private or public funds and at the same time have a creditor position, and the fact that they conduct a contractual type of business covering long periods of time, make such liquidation a more formidable task than is the case for many governmental administrative agencies.

At present there are in the Farm Credit Administration certain units in liquidation, several of them having been so for many years. Because the period of liquidation was extended, the consolidations motivating the decision to liquidate have been postponed, leaving behind a structure which is more complex and costly than before.

The suggested organizational changes would necessitate liquidation of several units of the present system. It is recommended, therefore, that there be set up within the Federal Farm Loan Corporation a special Liquidation Division charged with the responsibility of winding up, in as short a time as practical after such consolidations are authorized, the financial and legal affairs of all units and funds which are to be discontinued, of transferring their loans as rapidly as practical to the new agencies, and of holding in trust their assets and capital until such liquidation is carried through.

Among the agencies and funds thus to be administered are:

1. The Agricultural Marketing Act Revolving Fund.
2. The joint stock land banks.
3. The Crop and Feed Loan Division of the Farm Credit Administration.
4. The Regional Agricultural Credit Corporation of Washington, D.C., and its branches.
5. The loans and assets of the Tenant-Purchase Division of the Farmers' Home Administration.
6. The loans and assets of the Rehabilitation Division of the Farmers' Home Administration.

7. The assets of the 12 production credit corporations.
8. The loans and assets of the 12 intermediate credit banks.
9. The loans and assets of the Central Bank for Cooperatives.

The Liquidation Division of the Federal Farm Loan Corporation should also be authorized to take title to, and administer and dispose of, assets and collateral acquired by the various units in executions against insolvent debtors wherever such disposal appears to be the most efficient and economical way of handling them. Such transfers should be in accordance with procedures agreed to by the various units of the system and designed to provide liquidation through those channels where it can be handled most effectively. In most cases the unit holding the loan would handle the property for a time with a view to working out the problem. If it becomes evident that the property should be held for some time or if it could be better handled by personnel specialized in liquidation procedures, it could be transferred to the Liquidation Division. In acquiring such properties the Federal Farm Loan Corporation should take them over at appraised values in keeping with what they would be expected to yield net to the Corporation, but not less than what could be obtained for them in the market at the time title transfer is made. The Corporation should be obligated to pay, out of the net profits on liquidations of a given class, a dividend to the agencies or units from which such properties were transferred. Such dividends or profits would be credited to the respective insurance funds from which the losses had been made up.

In some cases it might be found mutually advantageous for the Liquidation Division to arrange with specific lending units to handle local arrangements. However, under the plan proposed the various lending units would keep their books relatively free of assets of uncertain value, and management and disposal would be placed in the hands of personnel specialized in that function. Where the property consists of foreclosed farm lands, actual management of the properties would usually be assigned to the farm management unit in the Research and Service Division, but the ownership would be held by the Liquidation Division since this requires corporate structure.

At present it is common practice in the Farm Credit Administration for the federal land banks and the banks for cooperatives to handle such acquired collateral individually. This procedure has

several disadvantages. By accumulating such assets, the value of which may still further decline, the institution loses financial strength, particularly if foreclosures show a heavy regional concentration. Often the lending agencies are tempted to hold such property for many years, even at high expense, because they expect eventually to recover the initial loss. It is much more important to the welfare of agriculture, however, that the credit agencies remain, even in a severe depression, in such a strong position that they strengthen the confidence of the public at times when it might otherwise be weakened. The credit agencies should be able to clear their books of such losses quickly without unloading the distressed property acquired on to an already glutted market. To write off such losses at once is a better policy than to throw "good money after bad," particularly if provision is made for sharing in the potential gains made in liquidating the properties. In the real estate market, such treatment of foreclosed property would have a salutary effect, because the Liquidation Division would retain it in quarantine until such time as the demand revives.

The Liquidation Division should avail itself of the service of the farm management section of the Research and Service Division, and should avoid building up a farm management staff of its own.

If, as recommended, the liquidation of discontinued branches of the agricultural credit organization is limited to a relatively short period, that part of the Liquidation Division concerned with these transfers should soon shrink to a small skeleton staff. The other branch, dealing with the liquidation of foreclosed real estate and other collateral, would operate with a very small staff so long as the foreclosure rate was low, but if a major depression occurred this branch would need to expand its staff in accordance with the greater volume of business.

THE FEDERALLY SPONSORED CREDIT SERVICES TO AMERICAN AGRICULTURE

E. OTHER TYPES OF LOANS AND SERVICES THAT MIGHT BE BROUGHT INTO A COORDINATED AGRICULTURAL CREDIT SYSTEM²⁵

The Government has made provision in special acts for a variety of loans for agricultural purposes which might well be reviewed as

²⁵ Presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947, by William G. Murray. (Several of the more general problems of agricultural credit are discussed in this section of the committee's report, but for reasons of economy in space are omitted from this presentation.)

to their relation to a well-coordinated over-all program. In most cases these were provided as a means of implementing programs in which purposes other than that of providing credit were dominant. Many of the agencies are cooperative in type but were not brought into the cooperative credit system, possibly because the legislation setting up the Cooperative Credit System did not contemplate loans of these kinds, or because the agencies were initiated before the banks for cooperatives were created, or, in some cases, because it was the desire of the Congress to provide subsidies in the form of special concessions in the rate of interest. The rural electrification service falls in this class. Others are the loans made by the Reclamation Service and loans by the Reconstruction Finance Corporation for refinancing irrigation districts.

It is evident that there may be Congressional objection to bringing these into a more general agricultural credit program. There are, however, sufficient indications of possible advantage in such consolidations to make it desirable that they be considered by the credit agencies and the Congress. After the initial period of development it is likely that the strictly credit functions involved can be handled better and more economically by agencies specializing in credit management.

Irrigation and Reclamation District Loans

During the 1930's many irrigation and drainage districts were refinanced through loans from the Reconstruction Finance Corporation. As a whole this procedure appears to have been a constructive step which helped to rehabilitate many districts without entailing any undue burden on the federal treasury. Many of these loans will run for long periods before final payment. Another type of loan on water facilities, that to mutual water companies, is now being provided by the banks for cooperatives, apparently in a very satisfactory way.

It would appear that some study might well be given to the possible advantages of bringing all such loans into a single program handled by the banks for cooperatives. The irrigation and drainage districts are, in effect, large-scale cooperative agencies. Legally, however, they have more of the characteristics of a governmental unit than of a cooperative association.

It would seem that the most workable solution, if such a plan were considered, would be for the R.F.C. to continue to provide

funds as at present, and to use the banks for cooperatives as its agents in supervising and servicing the loans.

Rural Electrification Loans

There would apparently be some advantages in bringing the rural electrification loans into the regular cooperative bank system of financing. If such a loan, once the association has been established, could be transferred to a regular financing agency, the funds of the Rural Electrification Administration would be freed for more rapid extension of the system. Whatever write-down of investment might be necessary to make loans of this kind acceptable to the banks for cooperatives would in any event have to be borne by the public in one form or another, through direct subsidy, subsidized interest rate, or eventual write-down of principal. It might be as well, therefore, to write it off at the time of transferring the loan. There appears to be no merit in a long-continued and indefinite subsidy in the form of an interest rate below that of the competitive market.

There are undoubtedly some technical advantages in keeping together the engineering, promotional, and financing activities of the rural electrification cooperatives. It is believed, however, that these advantages, with respect to financing, will become relatively less important as these organizations become better established. The possibilities for more specialized financial service, and for economy in servicing the loans would seem to warrant study and consultation between officials of the Farm Credit Agency and those of the Rural Electrification Administration.

Reclamation Service Financing

There has long been recognition of certain difficulties arising where the government is both operator of a reclamation district and creditor of the farmers served by the district. Extreme and sometimes unwarranted pressures arise for blanket adjustments. There would seem to be merit in separating the engineering phases of these projects from the long-term credit operations relating to the individual farms.

It is suggested, therefore, that there be a careful study of the possibility of establishing individual financial responsibilities in land purchase in such districts and that, if practical, these be converted to individual mortgages and handled by the regular credit

agencies. It is apparent that such a program would imply changes in legislation and that there may be compelling reasons against it. Hence the suggestion is merely that it be given study.

Credit for Forest Production and Operation

The suggestions made above relate to types of credit that are now being provided by the Government. There are in addition certain other fields in which credit is not now provided, but where some provision of credit is needed. The largest and most significant unserved field of that kind is forestry.

There is evident need for more orderly methods of financing forest holdings, and for policies in forest finance which will encourage better forest practice and the conservation of forest resources. This is especially true for the small and medium sized holdings and operations where the financing procedures of large corporations cannot be used. The small and medium sized owners and operators are not able to reach the money markets by issuing their own bonds and often cannot borrow under other arrangements for long enough periods or at low enough rates of interest. Because of this there is a marked tendency for holders of these forest resources to be induced or forced into hasty liquidation, and for them to forego the slower but more desirable practices of orderly cutting and maintenance of the resource.

The committee did not undertake detailed study of the forest credit problem. The problem, however, is of sufficient importance and urgency to warrant the setting up of a special committee to undertake the formulation of plans appropriate for meeting the need for credit of this kind.²⁶

Farm Home and Land Improvement Loans

There is need for study of possible ways to stimulate the improvement both of farm homes and farm lands. The capital accumulations of the United States are now so vast that there will be a continuing problem of finding outlets for accumulated savings. In part these should go into improved rural homes. There are certain barriers to such use, however. Among them are the individual farmer's need for additional operating capital in his business, the fact that

²⁶ Such a committee has been set up since this report was written. It has completed its study, and its report has been mimeographed and circulated in preliminary and confidential form.

a loan for home improvement cannot be made without mortgaging the farm as a whole, and the lack of adequate architectural aid and craftsman services.

Some of these functions are not well suited to a credit agency. However, since improvements of this type would add markedly to the nation's cultural assets and could provide needed occupation for labor and capital in depression periods, study may well be given to arrangements whereby loans for these purposes, associated with grants of a part of the cost might be made. This would channel investment into those lines where the greatest social values would accrue instead of into increased land values which do not add to the welfare of the farm population.

During the past decade the Federal Government has given considerable encouragement to the construction of urban homes. The insured loans extended through the Federal Housing Administration and handled through the commercial banks have had a wholesome influence upon urban real estate credit and upon standards of construction for urban homes. In the period following the immediate postwar boom, strong efforts will undoubtedly be made by the Federal Government to stimulate investment in both urban and rural housing.

In many areas of the United States the condition of farm buildings, in general, and of farm homes in particular is far below what the yield of the land justifies.

This situation no doubt has its roots partly in the low standards of dwelling to which farm owners and operators have become accustomed. It seems evident however, that the initiation of a constructive loan policy for farm building improvement could be one of the means of facilitating a decided improvement in rural housing and of lifting the average level of farm buildings.

A constructive building and loan policy would consist of something more than merely offering farmers five- to ten-year loans for whatever they want to build. The lending agency, for example, would take steps to encourage the most economical kinds of repair, remodeling, and new construction in farm buildings of a type and design that would substantially improve the service to be derived from them, would reduce maintenance costs, and would enhance the value of the property and of the rural community.

Loans for such purposes should be made according to certain rules consistent with that sort of policy, and with a proper and crit-

ical use of information on the earning capacity of the farm as determined by the appraisal service. Terms of the loan, as well as its size, should be decided with special emphasis on the durability and quality of the improvement.

Loans for these purposes should be extended for as much as 18 years. They should normally be amortized within the term, but in cases where they are safe, flat loans could also be permitted.

Such loans should be contingent upon earnings by the farm adequate to repay them without jeopardizing the basic financial situation of the farm. This implies that they would need to be deferrable under certain conditions. Such a plan is not without precedent, particularly in the British arrangements for aid to farmers in improving the housing for their employees.

Somewhat similar arrangements might well be considered for certain types of soil improvement such as liming, fertilizer applications, drainage, check dams, and similar improvements not likely to be made unless special stimuli are provided. Such a plan could be used in place of the current soil conservation payments in a way to encourage more discriminating use of such funds and to avoid wasteful practices in their administration.

Such plans as are here contemplated would no doubt require specialized divisions in the credit agency and would require very careful definition of policies by the Congress. Technical assistance, for example in housing, would need to be supplied by suitable agencies such as the Housing Administration. Granting these safeguards, such plans could go far to raise the level of rural living and to provide constructive outlets for capital and labor. They would amount, in effect, to lowering the marginal cost for some of the most desirable types of investment.

Providing Services to Non-Borrowers

The provision of credit for agriculture creates a need for certain related activities. Appraisals must be made, titles must be examined, some farms must be taken over and managed until sold. In some cases audits must be made and accounting systems set up.

For credit supplied by individuals and the smaller private credit agencies, these services are usually obtained from privately owned, specialized agencies furnishing the services on a fee basis. The larger private credit agencies are tending more and more to build up their own service divisions and holding corporations to provide

services of this kind. The purposes have been to secure the services at lower cost and to provide for themselves services better suited to their needs.

Question has frequently been raised as to whether organizations such as the Farm Credit Administration and the Farmers' Home Administration should not consider some further developments along those lines, both as an economy in their own operations and possibly as a means to broader public service. Some of the functions such as appraisal are usually handled by the agency extending credit, but in most cases such services have not been available to non-borrowers. Title insurance, auditing, and similar functions more generally have remained as a field for specialized private agencies.

Two principal problems of policy are presented; one, how far should the federal agricultural credit agencies go in providing such services for themselves? Two, should they make services of this kind available to non-borrowers? The comparable viewpoint in private credit operations, with regard to servicing their own loans, would undoubtedly be to set up their own services if they felt the service could be provided more economically or could be done better, assuming that these gains were large enough to warrant the trouble, expense, and risk entailed. Few of the private credit agencies have undertaken, however, to provide any services of this kind to non-borrowers.

If it is found that such services could be established practically, it would seem best to confine them for the present to properties on which the agency expects to make loans. It is conceivable, however, that once in full operation they could become a more general public service on a fee basis. It is to be expected that such a plan would meet considerable opposition from established service agencies. It seems likely, however, that general sentiment would favor it since there is a widespread feeling that some of these services, such as title insurance, tend to be monopolized and that charges are unwarrantedly high.

Such services should not be undertaken unless there are prospects for substantial savings or of marked improvement in service. The responsibilities of the governmental credit organizations are already large and diverse, and should not be added to unless there is a clear prospect of public advantage in so doing.

A controlled and competent appraisal service was recognized as a

necessity from the first. The other functions mentioned present less clear-cut advantages. Nevertheless, the needs for improved service and the volume of operations have grown to an extent that warrants rather general review of the possible advantages in developing internally some of these services.

The question of extending such services to non-borrowers presents a number of additional problems. There is no merit in providing a service through governmental channels as an end in itself. Where a service is available privately on a reasonably adequate basis and at costs not substantially higher than those likely to result from supplying it through governmental agencies, it should not be undertaken by them. Study of each function should include consideration of the possibility that the private offering could, with suitable encouragement and cooperation from the public agencies, be made more comprehensive and satisfactory. Nevertheless, where it is evident that private agencies do not or cannot meet the needs of the public adequately, the public agencies should consider seriously the provision of needed services closely related to the function of supplying credit.

In the realm of land appraisal there is evident need for a better source of information to prospective buyers and sellers than now exists. There seems no prospect that this need can or will be met in all areas by private agencies. The major question is whether it can be provided practically by the government agencies and without dangers to them that offset its advantages to the public. For auditing and accounting there are involved both matters of cost and possibility of better service. In the management of foreclosed farms and the provision of management aid to borrowers, there is room for more constructive action and possibly a need for services not now available through either private or public agencies.

In title insurance the problem turns mainly on cost of service. The insurance of land titles constitutes a relatively large item of cost in real-estate loans. The business of providing title search and insurance is tightly held and in the opinion of many the charges are higher than they need to be. It is evident that individuals and agencies handling small numbers of loans cannot afford to assume the risk of guaranteeing titles. It would appear, however, that the land bank system is now large enough and sufficiently wide in its coverage to be able to assume risks of this kind.

It is suggested that careful study be given to the possibility of

establishing a land title service and handling for its units the insurance of such titles. Presumably such service would have to be provided on a flat fee basis, but probably could be provided at substantially less than is now charged by title searchers and title insurance companies. If so, this would provide in the cooperative credit system an additional saving to borrowers. Special consideration should be given to the possibility of foregoing in areas characterized by small loans some of the more expensive protective arrangements such as title search and professional inspection. The establishment of insurance funds to meet such losses as might occur would very possibly be a cheaper procedure than the one now used. In this case a fee could still be charged, out of which the insurance charge would be paid. Inspection and report would be made by a local director or other representative of the association. The saving thus achieved might be sufficient to make many of the associations handling small loans self-supporting without incurring excessive risks.

A regular title insurance service would be more costly at the beginning than after a considerable body of title records had been built up. It might have to operate at a loss for a time. The plan should not be undertaken unless a study of it indicates possibilities of a rather substantial saving to borrowers.

DISCUSSION*

FRANK PECK

Farm Foundation

First, I should like to say I think the Committee of Economists engaged by the Governor of the Farm Credit Administration to examine the existing organization and to make recommendations for improving the Farm Credit system, has done a thorough and generally a commendable job. Those of us who have been close to Farm Credit realize that no one should expect any reorganization plan to be simple, because the organization, with its multiple functions, is exceedingly complex.

One cannot quarrel with the philosophy and ideology of Dr. Brandt in his outline of objectives and general policies and purposes of a federally sponsored Farm Credit system. His paper properly attempts to place safeguards against soft credit and emphasizes the need of sound business but provides for unsound loans and grants in actual practice. He expresses hopes that adequate supervision will minimize the dangers involved in the latter activities.

* A discussion presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947.

Emphasis is placed upon the recommended close coordination between various types of loans, implying, for example, that direct loan borrowers will transfer to the cooperative system when their equities permit. To induce such transfers the author recommends a higher interest rate for direct loans to marginal borrowers who cannot qualify for cooperative loans. This is contrary to the past experience, in which Congress has indicated its desire to lower the interest rate for those who cannot meet sound banking requirements. Perhaps Congress will change its previous ideas in this connection.

Emphasis is placed upon the savings that will result from the operations of the reorganized plan as contrasted with existing experience. One would need a detailed cost analysis of both systems for comparative purposes before being too certain of this so-called advantage. I have noted reorganizations of various institutions in the past with this motive as an objective, but the evidences of economy have not been too prominent.

A great deal is expected of the chief administrator and his associates in the proposed plan. It is not easy to run a business institution and a relief agency at the same time. In theory it appears practicable, but in practice the omnipotent government is so strongly in the picture as to cast lengthening shadows over the administration of the system.

How to reconcile the objectives Mr. Brandt so ably presents with the obvious necessity of reducing the numbers of farmers and how to avoid encouraging more marginal producers on marginal land is not too clear. He advises against it but if Congress approves, it will be done by our agency. The problem is recognized, and a rather clear picture drawn of what has happened in the past, but the assurance that history will not repeat itself in this connection, cannot be made certain.

The Proposed Plan

It is perhaps natural that I should be interested first and concerned most with the administration of any reorganization plan. It is in this area that organizations largely succeed or fail. The various levels of administrative responsibility in any large far-flung national institution, particularly if complicated by governmental relations, regulations, directives, and changing influences, require that very great emphasis be placed upon high calibre and capacity in the fields of policy making, administration, and operating personnel. The government cannot always command this.

At the national level, the plan, at first glance, appears to be especially complicated with the discount bank at headquarters, with the continuation of the federal farm mortgage corporation, with the new Federal Farm Loan Corporation and its liquidation section, with the public appraisal service and the proposed farm management service. I am sure important questions center around these features of the plan. For example, repeating the second mortgage experiences with the Federal Farm Mortgage Corporation is not particularly attractive to those who went through the previous experiences. Any standby skeleton section of an organization waiting for pressing emergencies presents difficult administrative problems. I have not seen many government skeletons that did not get fat. The description of

assigned functions of the Federal Farm Loan Corporation does not clearly indicate lines and degrees of authority or stress the complexity of the relationships involved.

I am in accord with the proposed over-all advisory board and the method suggested for selecting the governor and his associates. I see no objection to the development of the district agricultural bank for first mortgage real estate loans and production loans, and possibly the cooperatives could be served under one administrator as a department of the district agricultural bank. I would concur with the principle of keeping the direct loans entirely separate from the cooperative system but the public is not likely to differentiate between the two.

At the district level the coordinating committee and the advisory committee for direct loans tend to decentralize responsibilities, as all committees do, and in some responsibilities they likely would muddy the water more than they clear it, but at least for the sake of appearing to stimulate coordination, it may be necessary though I doubt it. If coordination is made a part of the responsibilities of the chief administrative officer or officers under the district boards, the results ought to be effective. I am constitutionally opposed to committees where they possibly can be avoided.

The lines of authority need to be carefully worked out in the plan and I can see some objection on the part of the district boards with respect to some of the functions outlined for the Federal Farm Loan Corporation and its liquidation section. It is difficult to clearly understand the proposal without more detail of administrative responsibilities.

I have no objection to a public appraisal system as recommended, although its maintenance on a fee basis with its staff subject to varying demands for miscellaneous types of services aside from land bank and production credit appraisals, greatly complicates its most effective administration. I did have objection, while connected with the land bank system, to having land bank appraisers, as such, assume responsibilities for private appraisals under the then existing form of administration. I am not too sure now of this feature of the plan.

I have more questions about the effectiveness and administration of the proposed farm management service section than I have about the appraisals. The description of services looks fairly well on paper and in theory, but operating such a service on a fee basis and correlating an efficient staff with varying demands and still preventing overlapping with extension workers and with professional farm managers, present real administrative problems.

The borrowers' stock changeover to a membership basis will bother some people, but I see no objection to it. In fact, there are distinct advantages from an operating standpoint and on the part of borrowers. The objective of "producer owned and controlled" has been overworked from a stock-ownership standpoint. Granted that investment in stock may stimulate interest in support of an institution the resultant equity and its control counterpart can be obtained through reserves and retained patronage refunds. If membership relations are properly developed and maintained, a membership fee carries the same degree of control as stock ownership.

Some of my cooperative friends may disagree. The problem will center on having the substitute method clearly understood inasmuch as it involves the establishment of the complicated insurance proposal and requires an added increment to the interest rate. Whether or not this change would have any adverse effect upon bond and debenture sales may be questioned, but I would doubt it.

The point also might be made by land bank borrowers that the government presently has no capital in the system, that it is completely owned by the associations, and as owners, therefore, they are the ones to really decide, perhaps, if this particular part of the plan is acceptable.

Aside from this, of course, there are always many practical problems in a program of liquidation, elimination of employees and changes in responsibilities, and were the plan to be adopted I presume a transition period would be needed in order to avoid serious complications.

DISCUSSION*

R. I. NOWELL

Equitable Life Assurance Society

At the outset let it be clear that we favor the cooperative idea. In fact I could hardly do otherwise because the Equitable Society is one of the largest and most successful cooperatives in the nation. All of its \$4,324,000,000 of assets are owned by approximately 3,700,000 policyholders. All income from our business after deducting expenses and necessary reserves is returned annually to policyholders. I believe there is plenty of room in this country for both a Federally sponsored cooperative system and a private system of farm mortgage credit—that both will profit from competition afforded by the other, and that farmers and the general public will also benefit. In order to make the competition fair, however, it is essential that the federal system be stripped of all subsidies and made to stand squarely on its own feet. It was tough going for private lending organizations in the years 1935 to 1944 when Congress appropriated \$270 million to maintain an artificially low interest rate of $3\frac{1}{2}$ percent. The use of Commissioner money from 1933 to June, 1947 gave Federal land banks an unfair advantage when competing with private agencies in principal amounts.

Both of these items now have been eliminated, but the Production Credit System in the short-term loan field still has the unfair advantage of large amounts of Federal capital. It is also in order to point out that Federal capital, which the land banks have returned to the Treasury, is held in an earmarked fund and is subject to recall by the Farm Credit Administration as capital stock and paid in surplus of the banks without further act of Congress. These funds amounting to \$314 million give the banks an unfair competitive advantage in their current operations. I think this fund should be abolished, and if at some future date the land banks need additional capital, Congress should then take a fresh look at their operations. If these

* A discussion presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947.

earmarked funds were abolished, I suspect it would have significant influence on the banks' policies with respect to dividends and the granting of extensions to delinquent borrowers.

Since these papers were written, the land banks like everyone else in the mortgage business have experienced a squeeze between rising costs of doing business and a reduction in their gross earnings. Costs of obtaining mortgage business, including salaries, travelling expenses, supplies, etc., are sharply higher. Competition has become increasingly intense and farmers have reduced their land bank loans from \$1,200,000,000 in January, 1945 to \$976,000,000 as of January, 1947. Some reductions in personnel and other economies have been made but they fall far short of the adjustments needed. Instead of making adequate adjustments, the system has preferred to put on a strong drive for new business. Commissioner money has been used freely as a device for making bigger loans and outbidding conservative lenders. Dr. Brandt and Dr. Benedict seem to assume that the Commissioner money was a standby device for refinancing in periods of depression, and to be used very sparingly for the purchase of new farms in times of prosperity. Actually for the fiscal year ending June 30, 1946, 53% of all loans made by the system were joint Commissioner-Land Bank loans, or Commissioner first mortgage loans.

I agree substantially with Dr. Brandt's statement of principles. I like his suggestion that "the credit organization should operate according to good business principles and should reduce costs to that minimum which is consistent with maintenance of the service desired." Also, "The interest rate of a direct loan should be somewhat higher than on a cooperative loan in order to encourage graduation into the regular cooperative or private lending systems as soon as the borrower can qualify." By contrast to this very sound statement of policy, I should like to mention the direct loans of the Government under the tenant purchase program, which are written for a 40 year term at a 3% rate. When these loans are reduced to conservative limits, there is no incentive, in fact, there is a penalty if the borrower wishes to refinance his loan with a cooperative or private agency. Had these loans been written at a 4½% rate, many of the borrowers could now refinance at a saving of interest and thus permit the return to the Treasury of the Federal capital involved.

Dr. Brandt makes an excellent point when he states, "it should be made clear that the Government will not come to the rescue of creditors who have ignored public warning of excessive commitments by lenders and borrowers and have by their reckless lending caused or contributed to the insolvency of their clients." If a strong warning of this character were issued now by the Farm Credit Administration, it might act as a sobering influence on many private agencies who are now making wild loans.

Dr. Brandt urges that "Government guaranties should be used as sparingly as possible since these are likely to lead to less careful administration of the system and may involve the Federal Treasury in large and unpredictable losses." In this connection I am reminded of the current operation of the GI Bill of Rights, under which the Government insures private lenders making 100% loans to the extent of 50% of the loan or \$4,000,

whichever is smaller. As this program is now operated, lenders look only to their own safety and regard the guarantee as a \$4,000 cushion. No one considers seriously the veterans ability to repay the loan, the inflation in land values being caused by the program or the eventual loss to the Treasury. I think this program should be abolished or that lenders be made to share 50-50 with the Government in all losses incurred. Only an administrative ruling is required to make this change and it would definitely stop the foolishness now going on.

Dr. Brandt suggests that "Commissioner type loans are necessary in cases where the property is not eligible for a loan from the cooperative system because the operator is a part-time farmer, or there is some other condition that prevents his getting a regular land bank loan." Since the Commissioner now has gone out of business, I think the land bank should make provision for handling such cases. It is my understanding that the land bank is prevented from making part-time loans only by an administrative ruling issued in 1933. This was an unproven field at that time and to be on the conservative side the Governor preferred to let the Commissioner handle these loans. The Equitable Society and several other insurance companies are now actively soliciting this type of business, and there is no reason why the land banks could not also enter the field on a conservative basis.

In discussing the rehabilitation type loans, Dr. Brandt suggests there should be no pressure applied to put out specific amounts of money in each area. His point is well taken. I remember vividly the high pressure methods used in the early Resettlement Administration days to get money committed by states on some pattern preconceived in Washington, which paid little or no consideration to the true needs of the localities involved. At this point I would also suggest that all personnel dealing with rehabilitation loans be selected on a non-political basis. Too often in the past allotments of funds by states and loan approvals at the county level were not made free of political considerations.

Dr. Brandt's paper contains many other excellent policy suggestions, but I come now to the organizational proposals presented in Dr. Benedict's paper. I think the simplifications proposed are in the right direction, but hardly go far enough. As the Committee suggests, there is a tremendous amount of excess machinery and waste motion in the present set-up. If the Federal credit system is to survive without subsidies, it must rid itself of the barnacles of superfluous organization and functions. To use a good Anglo-Saxon word, they must get down to an "austerity" program if they are to meet modern competition.

As an example of modern competition in the farm mortgage field, I might mention The Equitable Society's Approved Mortgage Plan, which results in a pooling of facilities of commercial banks and the Society for extending long-term credit to farmers. Other insurance companies, recognizing the advantages of the arrangement quickly copied the plan. Today there are at least 5 different companies operating in the field and the Equitable alone has over 1,100 bank contracts. Under this plan a farmer can go to his local bank and get credit from 40 days to 40 years with an absolute minimum of

red tape and delay. Neither does he have to travel to an adjoining county because of his local Association having been consolidated. It is not at all uncommon for a farmer to make application for a long-term farm mortgage and have the funds disbursed by the bank within 3 or 4 days. Short-term production loans are committed by the bank in the barnyard. By contrast the service rendered by some of the land banks is relatively inferior. Farmers seeking credit through Federal sources are frequently pushed around and referred to several different offices before they finally get attention. Such delays and mistreatment are, of course, the source of criticism and result in loss of patronage.

As a means of further simplifying the system I would suggest that the District Banks for Cooperatives be abolished and their lending functions transferred to the proposed District Agricultural Bank. As I see it, there is no reason why a vice president of the District Agricultural Bank could not handle all loans to cooperatives.

I agree that the direct loan program should be kept separate, administratively, from the cooperative credit system. However, I should like to see closer coordination between the two on the county level. As a minimum, I would suggest that the Agricultural Credit Association and the County Administrator be housed in the same building. I would further suggest that the local representative of the District Agricultural Bank be permitted to interview all applicants first and that only those who could not qualify for Land Bank loans be referred to the County Administrator of direct loans. Unless this is done, there is bound to be rivalry between the two units and personnel of the direct loan program will solicit business that might very well be handled with regular Land Bank loans.

The Committee must have had its collective tongue in its cheek when it set up the block in the organization chart for a State Administrator of direct loans. For economy reasons the state office obviously should be abolished but they know from experience that this is politically impossible.

Now that the authority of the Federal Farm Mortgage Corporation to make Commissioner loans has expired, I think it should be abolished. Let its assets be returned to the Treasury and applied to reduction of the national debt. All functions which the Committee has assigned to the Federal Farm Mortgage Corporation could very well be performed by the Agricultural Discount Bank.

The Committee recommends that the Advisory Board on the national level be given a small staff for research work. This I believe to be unnecessary expense and duplication of the facilities of the Research Division. I would prefer to see the Advisory Board given only an Executive Secretary and authority to call on the Research Division for any special analysis or reports it might require.

I do not follow the Committee in their proposal to transfer all foreclosed real estate from the District Agricultural Banks to the Liquidation Section of the Federal Farm Loan Corporation. I would prefer to make the Banks and the local Secretary-Treasurers struggle with their own liquidation program. I think there is no better disciplinary procedure than to have a

loan man made responsible for collecting delinquent loans he or an associate has placed on the books, and if foreclosure is necessary, to manage and eventually sell the property. This is a very sobering experience and will make loan men much more alert to the hazards of their profession than they otherwise would be. Furthermore, to transfer such assets to the Liquidation Corporation immediately upon acquiring them would result in dissipating the banks' capital. If they were permitted to carry their real estate over a period of years, they would have a much better opportunity of recovering their original investment. It has been our experience that when a separate organization has the sole function of liquidation they become "professional" at getting the job done regardless of the recovery. A professional salesman generally measures his success in terms of volume rather than quality of sales.

I come now to the most important recommendation of this Committee, the proposal to eliminate the land bank stock and substitute therefore a simple cooperative membership with an insurance fund collected through an increase in the interest rate. The stock purchase requirement is, of course, a very serious handicap to the land bank system in the present highly competitive market. They cannot hope to obtain a fair share of the available conservative business as long as a 5% stock purchase is required. I think the Committee's plan to establish the insurance fund on three levels is very ingenious. This puts the responsibility substantially where it belongs and it would seem to safeguard the local associations against becoming impaired by forces beyond their control. When the Committee decided that $\frac{1}{2}$ of 1% would provide sufficient reserves against losses, the land banks were still making their loans on the basis of 50% of the normal agricultural value of the land, plus 20% of the value of the buildings. On this basis loans averaged about 43% of the normal agricultural value of the farm. Since then Congress has authorized the banks to increase their loans to 65% of the normal agricultural value. Quite obviously the banks are now assuming greatly increased risks, and applications to the insurance fund at a rate of $\frac{1}{2}$ % as suggested by the Committee would be entirely inadequate.

Albert S. Goss, formerly Land Bank Commissioner, writing in the *National Grange Monthly* of October, 1946, had the following to say with respect to losses at different loan ratios: "The history of the Federal Land Bank indicates, that over 30 years it has cost approximately 1 per cent to administer a 50% loan to pay the losses. While tests have been somewhat meager, the general result has indicated that the losses on a 65% loan have been approximately 300% greater than on a 50% loan, while the losses on a 75% loan have been approximately 600% greater." While Mr. Goss' loss figures seem inordinately high, his position is supported in part by data recently prepared for Congress by the Farm Credit Administration. It reports that actual losses on Commissioner loans have averaged .83% annually and would amount to 1.22% if reserves for loans now on the books are included. These losses have been incurred on a rising price level and would probably be much greater in a period of more stable values. To

insure against losses on loans ranging from 65% to 75% the Farm Credit Administration proposed an insurance fund, to be subsidized at the outset by \$83 million of Federal capital and to this would be added 1% annually on all loans outstanding within this ratio bracket. To provide proper reserves for 65% land bank loans in lieu of the 5% stock subscription now required, I think there should be credited to the insurance fund an amount not less than 1% per annum and possibly 1½% would be required. The exact amount of course can only be determined after careful analysis of their actual loss experience. In setting up a new system of this kind it is better that the rates be set too high rather than too low at the outset.

DISCUSSION*

H. B. MUNGER

Farm Credit Administration

It is in no way the fault of the persons whose papers I am to discuss that I had not received two of them before coming to this meeting. I have had an opportunity, however, of briefly studying the report on which the papers are based, and I shall comment upon some features of that report relating to those agencies forming the "cooperative" part of our farm credit system.

It seems to me that all of us interested in a better farm credit system are indebted to this committee of five for the study they have given this subject. It is a highly controversial one. But from thought, discussion and sincerity of purpose comes progress, and I want to see progress toward an even better credit service for farmers.

Available time is short and I shall not speak of the many parts of the report with which I concur: that the system should be truly cooperative in structure; that it should be self-supporting; that it should decentralize responsibility; that the coop system should provide leadership in better credit service to farmers; that it should provide keen but fair competition to other lenders in the farm field. Many other constructive and sound statements of principle and procedure are presented in this report.

My time before this group should be given to parts of the report which in my mind should be questioned as to principle or are untimely in their application.

It is recommended that the 12 Intermediate Credit Banks be liquidated and that there be one government capitalized discount bank in Washington with 12 branches serving the districts. Such a step completely removes policy control of the discount bank from the district Farm Credit boards and centralizes all authority in Washington. While loans would be made in the districts, policies and regulations would come from Washington. The supply of money would be turned on and off from Washington—this is a "cooperative" credit system.

From such a set-up it is but a short step to getting our loanable funds

* A discussion presented at the annual meeting of the American Farm Economic Association, Green Lake, Wisconsin, September 9, 1947.

direct from the U. S. Treasury instead of by sale of securities in the investment market. Such an idea is already in the minds of some people. Nothing would kill our cooperative credit system more quickly. Good sound business farmers will not support a system that runs to the Treasury for its money or in which all policy decisions are made by a super-authority.

It is suggested that the 12 P.C.C.'s be liquidated and that supervision of P.C.A.'s be taken over by the District Agricultural Banks. The most important function of the District Agricultural Banks, I believe, will be the present functions of the land banks—i.e., supervising the N.F.L.A.'s and making long term mortgage loans. If it is proper for the District Agricultural Banks to supervise the N.F.L.A.'s and also provide the loanable funds for them, it seems logical that, having the supervision they should also supply P.C.A.'s with short term money. If the District Agricultural Bank is to have P.C.A. supervision I see no reason for a separate discount bank either in Washington or in the districts.

An unfortunate fact in the present organization of the production credit system is that the corporations have no earning assets. Their capital is owned by the U. S. Treasury and is invested in government bonds, the income of which pays the operating costs of the corporations in their supervision of P.C.A.'s. Such costs, in the proposal, would be transferred to the District Agricultural Banks, yet I see no plan for compensating the banks for a service which now costs the production credit corporations one and one-half million dollars annually. Obviously, a part of the income derived from mortgage lending by the banks which are now completely owned by the N.F.L.A.'s should not be used for supervision of the P.C.A.'s.

The report suggests that certain services be added to those we now have in the farm credit system and I should like to comment on two of them. It is said that a staff, especially trained in farm management, would be helpful in connection with the weaker loans and might prevent many foreclosure cases. Such a service would necessarily originate at the district headquarters and would no doubt add to the present overhead cost of operation.

Real estate acquired by the banks would be placed under the direction of these professional farm managers until sold. But farms not sold relatively soon would be turned over to the Liquidation Division of the Federal Farm Loan Corporation. This liquidating service unit especially trained in that function, would supposedly do a better job than the cooperative credit agency that made the original loan and finally acquired the property. I cannot agree that such a conclusion is correct. But assuming it to be true, the fundamental objection, to the farm management service and the liquidation service as they apply to cooperative credit is that they lead us in the direction of more concentration of authority at the district and national levels. The production credit system, since its organization, has been decentralizing more and more responsibility to the associations. The land bank system has been heading definitely in that direction during the last few years, recognizing that a better job can be done locally if authority and responsibility are placed in a high-class board of directors.

Sound, successful, well-trained farmer-directors are most fundamental to

a successful cooperative credit system. Knowing the local people and knowing the farms they can keep more of their members from serious difficulties than can professional farm management folks sent out from district headquarters. And in the case of acquirement of property and its liquidation, who is in better position than the directors and their employed personnel to lease or operate, make necessary repairs and finally arrange the terms of sale of the property. The district agencies will always be of great help to the associations through advice and counsel, but the decisions and responsibilities for them had better rest in a capable, well trained board of directors of the local association.

The committee properly recognizes that interest charged to members should be high enough to cover not only operating costs but also losses. It is suggested that uniform interest be charged, high enough to cover losses in high risk areas, and that patronage refunds to members be made in the lower risk areas.

There seems to me no reason why interest rates to farmers should be the same throughout the country or within a state. Risk is but one factor affecting the cost of retailing money. Others are the size of loans and the density of farms in the area served. Certainly in the case of short-term loans, local boards of directors might properly initiate a rate of interest which would permit a spread sufficient to pay operating expenses, including losses. I would permit variable interest rates as between P.C.A.'s to be determined by local boards of directors. It seems consistent with the philosophy we talk so much about—local ownership, control and responsibility.

The four permanent district corporations—The Land Bank, the Intermediate Credit Bank, the Production Credit Corporation, and the Bank for Cooperatives together with N.F.L.A.'s and P.C.A.'s—which we think of as the cooperative credit system, have been operating for a period of 15 to 30 years. They have rendered inestimable service to thousands of our good farm folks. I doubt if there is sound reason for a general overhauling of the corporate set-up of these agencies at this time.

Such reorganization would be instituted at a time when important changes are being completed in the relationship of N.F.L.A.'s to the land banks. Decentralization of responsibilities in the making and servicing of mortgage loans is now being effected. Still further effort in this direction is contemplated by the banks as the associations are prepared to accept the responsibility.

P.C.A.'s have substantial farmer-owned capital and accumulated earnings—both amounting to more than the government invested capital. The farmers own the major part of the business. There is enthusiasm among the directors and members to own it outright. They are repaying government capital each year. Many associations have programs to increase their farmer-owned capital and the response of members in purchasing it has been splendid.

Major changes in the set-up of the district units with attendant changes in personnel cannot but retard the programs of decentralization with the

N.F.L.A.'s and of farmer-ownership with the P.C.A.'s. Farmers are likely to face difficult times ahead, and credit agencies will not wish to be in a period of reorganization when such times come. Our best efforts should be used at this time to strengthen the associations so they may carry greater responsibility in the operation of the business.

It seems to me a great deal may be done to improve our farm credit system without any changes in our legal set-up. The committee suggests—and properly so, I think—a closer relation between the long term and the short term credit agencies so that farmers may go to one office for their credit needs and get the service from one person. Changes in the law are not necessary to accomplish that objective. Furthermore, such a program might not be the best in every part of the United States. In our district there are about 60 offices set up through the cooperation of P.C.A.'s and N.F.L.A.'s where farmers go for both types of credit. One person is usually the secretary of both associations and other personnel do both types of work. Such an arrangement makes sense to the farmer, and association boards of directors like it. Not all of them work perfectly. We have our problems of smooth operation, the main one being to get competent personnel. Getting the right kind of folks solves most of the difficulties.

Our Land Bank and Production Credit Corporation are working closely together in supervising these joint association set-ups. We are experimenting with joint-field accountant service and joint supervision of other activities. None of it is forced on anyone by law or edict. If it doesn't work, we'll change back to our former organization. If it works others may wish to try. Conditions are different in different districts of our country. I cite this as an example of what may be done to accomplish one of the things the committee proposes. I believe there are situations where our coordination program would not be acceptable to farmers and stockmen. I should dislike to see it forced on them thru legislation.

I do not wish to be understood as being opposed to any legislation whatever, in relation to improving the farm credit system. I fully concur with the committee in its recommendation that provision should be made for borrowing cooperatives to own the Banks for Cooperatives. Legislation is necessary to make this possible. Similar legislation is needed to make it possible for P.C.A.'s to own the Intermediate Credit Banks and take them out of the position of wholly-owned government corporations.

I would like to see N.F.L.A.'s have broader authority and responsibility in the making of real estate mortgage loans. If legislation is necessary to bring that about, I should favor it. It should be permissive legislation and the authority should be delegated to associations that are qualified to accept it.

Eventually, it seems to me the P.C.C.'s and the F.I.C.B.'s might be combined to form an institution that would supervise and provide funds for P.C.A.'s, just as the land bank does for N.F.L.A.'s. There would be some economy in such a step, and it would remove the present difficulty of the corporations having to rely on the income of government capital for their support.

DISCUSSION

WILLIAM L. CAVERT
Farm Credit Administration

To begin with, two questions may be raised in regard to this report:

1. Is the committee thinking in terms of the American farmer as the backbone of our system of free enterprise, a man of independence, not seeking favors for himself and not readily granting them to others, or is the committee willing to encourage an attitude among farmers of dependence on Government for their well-being?
2. As regards Farm Credit, does the committee go along with the administrators of the Farm Credit Administration in seeking to develop a cooperative system of farm credit—not in name only, but one in which there is pride of ownership and active participation by members? If so, then the proposals affecting the Farm Credit Administration should be judged according to this standard. In general, is not the assigning of a miscellaneous group of governmental chores to the Farm Credit units likely to foster the idea that they are essentially units of government rather than independent cooperatives?

The following are comments on specific proposals of the committee:

The proposal that the banks for cooperatives act as agents for the RFC in administering irrigation and drainage district loans. Since irrigation and drainage districts are units of government, their work is only distantly related to the objectives of the banks for cooperatives. The proposal that the banks for cooperatives finance REA associations. The major objection to this proposal is that the REA type of cooperative, at least up to the present, is quite different from the type financed by the banks for cooperatives in which the borrowing cooperators are expected to supply a substantial amount of equity capital. Bringing the REA into the set-up of the banks for cooperatives would work toward the idea of keeping the banks for cooperatives as governmental agencies rather than toward the aspiration of cooperative leaders to develop a bank system that belongs to them rather than to the government. This reviewer is in agreement with the committee that, as a matter of principle, it is desirable to segregate the financing function from the promotion, engineering and administrative functions but, as just indicated, it would be difficult to fit the present REA set-up into borrower owned banks for cooperatives.

Farm Home and Land Improvement Loans.

The committee apparently assumes that the major reason for lack of better rural housing is lack of readily available credit and that the farmer should look to government for aid. This reviewer is not impressed with the argument that lack of credit is an explanation for the low standard of rural housing in certain areas. The reasons that seem much more important are:

1. The lack of income to support the good housing desired. In general, subsidized credit for housing will tend to retard realistic adjustments, such as consolidation of farm units, and, in some cases abandonment

of lands marginal for crop agriculture in favor of forestry and recreation.

2. The farmer does not always agree with his governmental and collegiate advisors as to his most important needs. The farmer, as do economists, has an income that is much less than adequate to satisfy his numerous desires and happily in our economy it is up to him to decide how to use his limited income. Probably, it is desirable that many farmers should devote more of their income to housing. If so, representatives of educational institutions should be among the foremost in their confidence that a desirable way to achieve this is through educational processes. In general, the farmer will acquire all the debts that he can handle without governmental encouragement.

The proposal for government aid in technical services in connection with housing could, perhaps, be much better handled, too, by the education process. Governmental bureaus may be able to put out some good educational bulletins, but any service that they provide for individuals is likely to be very costly and of doubtful efficiency.

A much more promising approach is that now being used by several colleges of providing frequent short courses and other educational aids for rural builders.

The suggestion is offered by the committee that a program of making loans on farm houses might be formulated in which the house would be detached from the other security. Perhaps the net effect of this in many areas of modest productivity would be to largely eliminate real estate mortgages secured by land, as in areas of modest productivity a real estate mortgage without buildings may not offer much security to the creditor.

Proposals for an appraisal service and for title insurance.

The committee suggests that the land banks might conveniently do several chores in addition to their regular job of providing real estate credit on a cooperative basis, such as providing an agricultural appraisal service and a title insurance service. Again, the criterion suggested is to measure each of these proposals upon the basis of whether it will further the development of a cooperative system in which the responsibility for the administration of the system is progressively accepted by borrowers. As regards a public land appraisal system, it is the belief of this reviewer that if the users are to pay the cost, it would have far less use than its sponsors believe.

Farm debt adjustment proposals:

The fundamental question in connection with a permanent set-up for debt adjustment is whether such a system can be a part of the permanent set-up without weakening the will of debtors to pay when circumstances arise which make debt payment a real job. It is obvious that the maintenance of a low cost cooperative system must have as a part of its background a belief that a debt is a sacred obligation rather than something to be adjusted when circumstances make the going a bit rough. Perhaps, if a real emergency should arise, it would not take long with the experience that

we had in the 1930's to devise and set up a system suited to the particular situation.

To sum up, again the viewpoint on these questions will depend on:

1. Whether one is a vigorous exponent of a maximum amount of free enterprise in both one's own line of business and in other lines, or whether one is willing to lean heavily on Government.
2. If it is decided that such services as appraisals, title insurance and others are needed, the question arises as to what present or new agency should administer them. As regards assigning additional jobs to the Farm Credit Administration, if one views the development of cooperatives that shoulder responsibilities as the goal, these additional jobs should not be assigned to the Farm Credit Administration unless they are in line with the major objective.

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